SFG2871

Pakistan

SINDH ENHANCING RESPONSE TO REDUCE STUNTING PROJECT

Environmental and Social Management Framework (ESMF)

Directorate of Urban Policy & Strategic Planning, Planning & Development Department, Government of Sindh

Addendum to ESMF
January 2017

Executive Summary

The Government of Sindh (GoS) recently adopted an Accelerated Action Plan for Reduction of Stunting and Malnutrition (AAP). The AAP has the ambitious goals of reducing stunting from 48% to 30% by 2021 and to 15% by 2026 by increasing and expanding coverage of multi-sectoral interventions proven to reduce stunting in the first five years of life. The Sindh Enhancing Response to Reduce Stunting Project (hereinafter referred to as SERRS) project would support implementation of the AAP with a more modest objective of reducing stunting in Sindh by at least 1 percentage point per year from 48% to 43% over the life of the project. ESMF Consultant[1] has been commissioned by Directorate of Urban Policy & Strategic Planning to fulfil World Bank Operational Policies and to prepare the addendum of "Environmental and Social Management Framework (ESMF)" at its inception stage via assessing the project's environmental and social viability through various environmental components like air, water, noise, land, ecology along with the parameters of human interest and mitigating adverse impacts along with chalking out of guidelines, SOPs, procedure for detailed EA during project execution.

The project will finance: (i) results contributing to the achievement of the objectives set forth in the Government's AAP in Sindh; and (ii) technical assistance and other inputs needed by the government to facilitate the implementation of the AAP. Under Component 1 (US$ 50 million), the project will support a multi-sectoral package of services shown to contribute to the PDO by financing results achieved through DLIs under a defined Eligible Expenditure Program (EEP). Under Component 2 (US$ 13 million), the project would finance technical assistance and selected inputs to support: (i) measures for implementing the pilot CCT program for women and children in the poorest quintile to access health and nutrition services; (ii) development and implementation of an overarching multi-sectoral communications strategy for social and behavior change; and (iii) institutional arrangements for cross-cutting interventions including coordination, strengthening accountability, citizen engagement, integrated multi-sectoral data information systems, monitoring, evaluation, gender and supervision.

The physical interventions which are triggering the environmental and social adverse impacts are as under;

- Sanitation and Hygiene: Building on the proposed Multi-Sectoral Actions for Nutrition Project (MSAN) in 13 districts to make villages open defecation free (ODF), the AAP plans to expand coverage across Sindh. In addition to supporting the ODF initiative, project will incentivize an enhanced program on hand washing.
- Agriculture (including Livestock and Fisheries): Building on a flexible and demand driven approach to be piloted in 20 union councils of 4 districts under the proposed MSAN Project, the department plans to scale up to 10 districts with a high incidence of stunting with nutrition sensitive interventions that would contribute to enhancing household food diversity and access to high nutritive value foods, especially of the poorest and most food insecure households; and to consumption of high nutrition content food, especially by pregnant-nursing women, children under five and adolescents.

Environmental and Social Management

The existing ESMF of Multi-Sectoral Action for Nutrition (MSAN) Program is reviewed and this addendum has been prepared to reflect the scale up of activities under the AAP. For the first year the AAP has targeted two districts i.e. *Jamshoro and Mirpurkhas* for implementation. Therefore, this addendum to the existing ESMF of MSAN provides i) update for Environmental and social baseline, assessments and consultations

[1] M/s EMC Pakistan Private Limited

with stakeholders for the remaining two (02) districts of Jamshoro and Mirpurkhas. Updates for the environmental and social baseline, assessments and consultations with stakeholders for further districts will be attached to the ESMF within a month of district identification.

Baseline Data Collection

After initial information was collected and reviewed, Reconnaissance Survey (RS) in two district was conducted to collect primary information for the sub-projects. Profiles of each district were made during the RS depicting varied baseline conditions. 70-90 % of the population in the villages openly defecate. Unemployment is the also a main problem for females in villages. In fact, not a single female is educated in the some of the villages.

A large area of Mirpurkhas District is subjected to waterlogging and salinity. Agriculture through irrigation is the practice in the district which is the primary occupation of villagers and secondly cattle farming. Consequently, in Jamshoro, arid conditions prevail throughout the year make it difficult for agriculture through irrigation. Dug wells are the only source of drinking water in the areas in Jamshoro District. The underground water quality is not suitable for drinking with varying levels of hardness and total dissolved solids.

Stakeholder consultations

Stakeholder consultations have been carried out with local communities in both districts who are the direct beneficiaries of the project interventions. These consultations have revealed that the proposed SERRS project is considered to have a positive social impact by improving sanitation while eradicating open defecation as well as provision of nutrition food by the introduction of nutrition sensitive agriculture. Communities were of the view that i) SSS programme can change villagers' health and environment and can save children from diseases ii) people were aware that diseases are cause due to unhygienic conditions but find it very difficult for them to build latrines and enclosed washrooms, iii) community members were expected to be provided financial assistance from any organization for the construction of latrines.

Impact Assessment

Most of the Project's environmental and social impacts will be beneficial, including for example the positive effect on health caused by the reduction in Diarrhea and sanitation related diseases and the associated socio-economic benefits, considerable behavior change activities at community and district levels, and improved productivity (particularly benefiting females) generated by taking nutritious diet and good sanitation and hygiene conditions. The potential negative environmental and social impacts of the project are i) construction related localized and short-term impacts under Saaf Suthro Sindh (SSS) such as air and water pollution, noise generation, drainage and safety hazards etc. ii) Agriculture for Nutrition (A4N) includes increased use of pesticides and other agro-chemicals, water contamination especially surface water etc. these impacts require appropriate mitigation and management measures to contain them.

Environmental and Social Management

Under the ESMF approach, each subproject will be screened for the severity and extent of environmental and social impacts. Subprojects having negligible environmental and or social impacts will be screened through a rapid assessment checklist. Subprojects having some negative but localized environmental and or social impacts will require a generic Environmental and Social Management Plan (ESMP) to be prepared.

Recommendations under Environmental and Social Mitigation Plan

Subproject Siting to any sensitive area

- It will be ensured through screening checklist that the subproject avoids any ecologically sensitive areas, PCRs and involuntary resettlement.
- Involuntary Resettlement Screening Checklist to be used to check the land belong to the school or government land and free from any disputes.
- Village Organizations and LGD officials will be taken onboard for the identification construction site in schools.
- The subprojects will be established on the land owned by Agriculture department. However, private land if acquired will be through VLD procedure. If VLD will not be possible, the RPF as part of this report will be applied. Complete documentation will be maintained for VLD.
- Valuation and compensation of affected assets of community should be in line with RPF/Sub-projects RAPs and considered before the field activities.
- Community consultations will be carried out before establishing the sites.

Unsuitable toilet construction may lead to water contamination

- During behavior change activities in the communities, environment friendly designs of toilets (suitable for that specific area) will be disseminated within the communities as a guide and unfriendly design impacts shall be communicated.
- Monitoring shall be made during project life cycle to check the sustainability of implemented interventions.
- Flush toilets should not be encouraged in areas under the project where water is scarce and in dry season. It will be ensured to provide these site specific provisions in toilets construction guidelines by the project implementation unit.

Pit/septic tank Sludge Management

- Sludge Management should be made part ESMPs of each sub-project. Sludge after emptying the tanks/pits should be landfilled at proper location and left for degradation.
- During behavior change activities in the communities, this aspect will be communicated and awareness raising workshops will be conducted in communities.

Use of Adulterated/ banned Pesticide / Excessive use of chemical Fertilizer

- Judicious use of the irrigation water, chemical inputs and use of alternate techniques (such as integrated pest management, using disease-resistant seeds, and mulching) will be promoted through awareness raising and capacity building initiatives.
- The capacity building program will also include safe handling of hazardous substances such as pesticides.
- High efficiency irrigation technologies (e.g. tunnel farming) which is included one of the interventions of A4N component will be promoted to conserve already scarce irrigation water. ES of IP and ES from directorates will ensure to promote it in above areas after filling environmental checklists and incorporated in the FFS scope.

Health and Safety Hazards for the farmers

- Awareness and capacity building regarding Material Safety Data Sheet (MSDS) for each hazardous substance will be promoted.
- WB Group's EHS Guidelines will be implemented as appropriate.
- Use of appropriate personal protective equipment (PPE) will be mandatory while using pesticides.

Impacts on Women, Children, and Vulnerable Groups

- Women's participation is already included in project interventions like development Female farmer field schools (F3S), construction of girl toilets, focusing on women as the main agriculture producers.
- Lady Extension Workers (LEW) will be engaged as contingent staff for short period, so as, to work with women beneficiaries. (PC-I of A4N)
- Environmental screening checklist will provide first stage information about impacts on poor, women and other vulnerable groups including needs and priority for social and economic betterment;
- IPs and TSPs will ensure the active participation of women in project interventions as well as adequately consulted.
- In awareness raising under SSS, women share should be more compared to men.
- Ensure participation of vulnerable groups in project activities through consultations, to ensure planned investments take the well-being of such groups into consideration

Grievance Redress Mechanism (GRM)

The Directorates for both the SSS and A4N projects will serve as the secretariat for the Grievance Redressal Committee (GRC-Directorate) in case of both additional districts i.e. Jamshoro and Mirpurkhas that will be responsible for providing oversight on the entire GRM process at a strategic level and monitoring of complaints management. Grievance Focal Points (GFPs), which will be the ambassador of change and educated people from each community on each sub-project site. Two GFPs (1 male and 1 female) will be selected for each sub-project locations and will be community members who are easily approached by the community. A Public Complaints Center (PCC), which will be responsible to receive, log, and resolve complaints. A Grievance Redress Committee (GRC-District) will be established for each district that will manage GRM aspects for all sub-project locations in each district including decisions to be taken, actions and monitoring of complaints resolution at sub-project level. The ESFPs will play an instrumental role in steering the GRC functions at the district levels.

ESMF implementation cost

The total cost of this addendum to the ESMF has been estimated to be about Pak Rupees 22.11 million. This includes additional costs for capacity building and mitigation measures required to be taken for two additional districts.

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Acronyms

A4N	Agriculture for Nutrition	MAF	Million acre feet
ADP	Annual Development Program	MDGs	Millennium Development Goals
ALRI	Acute Lower Respiratory Infection	MHa	Million hectares
APs	Affected Persons	MICS	Multiple Indicator Cluster Survey
BHU	Basic Health Unit	MRL	Maximum Residue Limit
DC	Deputy Commissioner	MSAN	Multi-Sectoral Action for Nutrition
DCO	District Coordination Officer	NCCP	National Climate Change Policy
DMS	Detailed Measurement Survey	NGO	Non-governmental organization
DMU	District monitoring unit	NNS	National Nutrition Survey
DNCC	District Nutrition Coordination Committee	NPSC	Nutrition Project Steering Committee
DOA	Department of Agriculture, GOS	NSA	Nutrition sensitive agriculture
DOH	Department of Health, GOS	O&M	Operation & Maintenance
DOLF	Department of Livestock and Fisheries, GOS	ODF	Open Defecation Free
EA	Environmental Assessment	P&DD	Planning & Development Department, GOS
EIA	Environmental Impact Assessment	Pak-EPA	Pakistan Environmental Protection Agency
ENMCP	Enhanced Nutrition for Mothers and Children Project	PAHs	Project Affected Households
ESFP	Environmental and Social Focal Point	PARC	Pakistan Agricultural Research Council
EHS	Environment, Health, and Environment	PBS	Pakistan Bureau of Statistics
EIA	Environmental Impact Assessment	PCRs	Physical Cultural Resources
EPA	Environmental Protection Agency	PD	Project Director
ES	Environmental Specialist	PDMA	Provincial Disaster Management Authority
ESMF	Environmental and Social Management Framework	PKR	Pakistani Rupees
ESMP	Environmental and Social Management Plan	PMU	Project Management Unit
FAO	Food and Agriculture Organization	POPs	Persistent Organic Pollutants
F3S	Female Farmer Field School	PPE	Personal protective equipment
FBS	Farmer Business Schools	PSC	Poverty Scorecard
FFS	Farmer Field School	RAP	Resettlement Action Plan
FGD	Focus Group Discussion	RFP	Resettlement Policy Framework
FO	Farmers' Organization	RS	Reconnaissance Survey
GAP	Good Agriculture Practice	SIA	Social Impact Assessment
GDP	Gross Domestic Product	SEPA	Sindh Environmental Protection Agency
GOP	Government of Pakistan	SESA	Strategic environmental and social assessment

GOS	Government of Sindh	SEQS	Sindh Environmental Quality Standards
GRC	Grievance Redress Committee	SIDA	Sindh Irrigation Development Authority
GRM	Grievance redress mechanism	SS	Social Specialist
GPI	Gender Parity Index	SSS	Saaf Suthro Sindh
IESMC	Independent Environmental and Social Monitoring Consultant	SUN	Scaling Up Nutrition
INSS	Inter-Sectoral Nutrition Strategy of Sindh	SWD	Sindh Wildlife Department
IP	Indigenous people	SWMO	Sindh Water Management Ordinance
IPs	Implementation Partners	TA	Technical Assistance
IPM	Integrated pest management	TSP	Technical Support Partner
IPMP	Integrated pest management plan	UC	Union Council
IUCN	International Union for Conservation of Nature	UNDP	United Nations Development Programme
LAR	Land Acquisition and Resettlement	VOs	Village Organizations
LBOD	Left Bank Outfall Drain	WASH	Water, Sanitation and Hygiene
LGD	Local Government Department, GOS	WB	World Bank
M&E	Monitoring and evaluation	WHO	World Health Organization

Chapter 1 INTRODUCTION

The Government of Sindh (GoS) recently adopted an Accelerated Action Plan for Reduction of Stunting and Malnutrition (AAP). The AAP has the ambitious goals of reducing stunting from 48% to 30% by 2021 and to 15% by 2026 by increasing and expanding coverage of multi-sectoral interventions proven to reduce stunting in the first five years of life. The Sindh Enhancing Response to Stunting and Malnutrition (hereinafter referred to as SERRS) project would support implementation of the AAP with a more modest objective of reducing stunting in Sindh by at least 1 percentage point per year from 48% to 43% over the life of the project. ESMF Consultant[2] has been commissioned by Directorate of Urban Policy & Strategic Planning to fulfil World Bank Operational Policies and to prepare the addendum of "Environmental and Social Management Framework (ESMF)" at its inception stage via assessing the project's environmental and social viability through various environmental components like air, water, noise, land, ecology along with the parameters of human interest and mitigating adverse impacts along with chalking out of guidelines, SOPs, procedure for detailed EA during project execution.

1.1. Background

UNICEF (2013) notes that Pakistan comprises the third highest percentage of stunted children in the world and that more than 9.6 million Pakistani children face chronic malnutrition. Data shows that in the South Asia region, Pakistan has the lowest rates of early initiation of breastfeeding and exclusive breastfeeding (and the highest rate of bottle feeding), as well as low rates of timely initiation of complementary feeding, all of which contribute to the chronic malnutrition. It is estimated that the malnutrition crisis in Pakistan costs the economy 2-3% of GDP per year (in comparison, the present energy crisis is estimated to cost 2% of GDP) by impairing health, growth and cognitive development, school readiness and learning outcomes as well as potential productivity and earnings and adults. Furthermore, without an urgent response to significantly address malnutrition, the country will continue to experience this 'demographic nightmare' of a large population whose human capital potential is not fully realized, thereby resulting in unskilled, economically unproductive population which is left behind in a global economy that is increasingly requiring specialized skills.

While Pakistan's social indicators for health, nutrition, and education are low and lag seriously behind other countries in the region, the country ranks among the lowest spenders on education and health in the region (each at less than 3% of GDP). In addition, provincial and district disparities in access to and quality of services have become an important concern since the delivery of most key services became a provincial responsibility with the adoption of the 18th amendment of the constitution in 2010.

Nationally, only about 10% of the national health budget is spent on nutrition, and 90% of this amount is financed by development partners in Pakistan. Nutrition-related activities are mainly delivered by NGOs, often contracted directly by the development partners. Nutrition-supported activities in Sindh Province that contribute to reduced stunting and malnutrition include: (i) the World Bank-financed "Enhanced Nutrition for Mothers and Children"; (ii) the EU-funded "Women and Children Improved Nutrition Sindh" which will end in 2017, and the USAID-funded "Maternal and Child Nutrition Stunting Reduction" (implemented by UNICEF and WFP). With a contribution from DFID, the Pakistan Partnership for Improved Nutrition (PPIN), a Multi Donor Trust Fund administered by the World Bank, plans to finance nutrition sensitive

[2] M/s EMC Pakistan Private Limited

interventions to complement the health sector's nutrition interventions, focusing on sanitation and hygiene interventions in 13 districts and nutrition sensitive agriculture interventions in four districts.

1.2. Project Overview

The project would support implementation of the AAP with a more modest objective of reducing stunting in Sindh by at least 1 percentage point per year from 48% to 43% over the life of the project. Given the inadequate results of previous input-based projects, this project would use a results-based approach to link disbursements to the achievement of agreed-upon, pre-defined indicators. Disbursement-linked indicators (DLIs) have been used in other projects in Sindh and have contributed significantly to: (i) sector dialogue (by focusing on political ownership of the Government's program); (ii) technical results (by linking disbursements to planned progress and performance targets); and (iii) donor coordination (by facilitating planning, budgeting, and supervision within a common framework).

The project will finance: (i) results contributing to the achievement of the objectives set forth in the Government's AAP in Sindh; and (ii) technical assistance and other inputs needed by the government to facilitate the implementation of the AAP. Under Component 1 (US$ 50 million), the project will support a multi-sectoral package of services shown to contribute to the PDO by financing results, measured by the achievement of DLIs, under a defined Eligible Expenditure Program (EEP). Under Component 2 (US$ 13 million), the project would finance technical assistance and selected inputs to support: (i) measures for implementing the pilot Conditional Cash Transfer (CCT) program for women and children in the poorest quintile to access health and nutrition services; (ii) development and implementation of an overarching multi-sectoral communications strategy for social and behavior change; and (iii) institutional arrangements for cross-cutting interventions including coordination, strengthening accountability, citizen engagement, integrated multi-sectoral data information systems, monitoring, evaluation, gender and supervision.

1.2.1. Results Indicators

The target population and beneficiaries of nutrition-sensitive interventions will vary: (i) certain sectoral initiatives (hygiene and sanitation, agriculture, and social protection) will initially be piloted in selected districts before further roll out; (ii) several sectoral programs (MNCH and population) are already province-wide in scope; and (iii) other sectoral interventions (social and behavioral change) are cross-cutting in nature and will target the entire province. Specifically, prior to the mid-term review, the project will aim to increase the synergy of the various interventions on reducing the stunting rates by concentrating them in selected districts. When progress and achievements are confirmed at the mid-term review, a decision will be made on further expansion to other districts or additional concentration on specific districts.

1.3. Environmental and Social Management Framework (ESMF)

Location and design of the sub-projects to be undertaken under MSAN project are not known yet, therefore a framework approach has been being taken to carry out environmental and social assessment for MSAN project in line with the World Bank's Operational Safeguard Policy (OP 4.01) and local environmental legislations. Under this approach, the present ESMF/RPF has been prepared to identify the potential generic negative environmental and social impacts, propose generic mitigation measures, provide basic screening criteria, list the type of safeguard instruments to be developed and provide institutional, monitoring, reporting and documentation measures for environmental and social safeguards compliance.

1.3.1. Purpose of the ESMF Study

The objective of the ESMF study is to carrying out broad safeguards analysis, screening the proposed subproject interventions against adverse environmental and social impacts and recommending, where necessary, appropriate mitigation and enhancement measures, and course of action for further and detailed assessment so as to enable the preparation of an Environmental and Social Management Framework (ESMF) as well as the generic Environmental and Social Management Plans (ESMP) and Integrated Pest Management Plan (IPMP) or the identified activities/investments of the sanitation and A4N components of the subprojects. Also to broadly assess generic environmental and social consequences. The relevant portions of the ESMP and IPMP will be suitably integrated with the contract documents to facilitate smooth implementation during project operation phases.

Sindh Environmental Protection Act 2014 which is the principal legislation on environmental protection and compliance in Sindh since 2014, states the provisions of environmental protection and compliance and this ESMF has been prepared in line with those provisions laid down in the Act. Also the ESMF will need to comply with the WB safeguards requirements given in different operational policies (OPs).

1.3.2. Scope of the Addendum

The addendum of ESMF for the subprojects of Sanitation and A4N will provide baseline information and also identify generic environmental as well as social impacts of the subprojects for the additional districts. The specific tasks will include:

(i) Study the overall project details and also details of the subprojects under Sanitation and A4N their design, location, nature, key interventions supported by project/subprojects carry out reconnaissance survey of the subprojects under sanitation and A4N components and collect baseline data on physical, biological and socio-economic conditions prevailing in the area of each sub-project. Determine environmental and social sensitivity of the area and also environmental and social hot spots;
(ii) Undertake stakeholder consultations with a select sample of communities and institutions;
(iii) Prepare cover note for the existing ESMF stating the rationale and scope of the addendum and its applicability to the Sindh Stunting Initiative.

The Addendum will cover the following sections of the MSAN's ESMF.

a. Executive Summary
b. Introduction.
c. Project description.
d. Baseline description of the area of subprojects (i.e. the two additional districts where MSAN will be scaled up)
e. Impact assessment and mitigation measures (mostly generic).
f. Stakeholder consultations.
g. Outline the existing GRM and extend it to include the existing districts
h. Discuss how the Public consultation framework will apply in the 2 additional districts
i. Budget:
j. Annexes

1.3.3. Layout of addendum to ESMF

Chapter 1 (this chapter) provides a rationale and introduction of the project and addendum TORs. **Chapter 2** provides a simplified description of the Project and its components. The environmental and social baseline conditions are presented in **Chapter 3**. The stakeholder consultations have been covered in **Chapter 4**. The assessment of environmental as well as socioeconomic impacts, their mitigation measures are presented in **Chapters 5**. The Environmental and Social Management Framework is presented in **Chapter 7**.

Chapter 2 Project Description

2.1. Project Context

Sindh Province, with an estimated population of 51 million[3], comprises about a quarter of the country's population; it is the second most populous province of Pakistan and is nearly 50% urban. The province contributes 30-33% of the country's GDP, and its GDP per capita is roughly three times that of the country as a whole. However, based on the latest poverty data, 25% of the population of Sindh lives under the revised poverty line, and the 2011 National Nutrition Survey (NNS) found that Sindh was the most food-deprived province, with 72% of households' being food insecure. The most recent data (MICS, 2014) shows that 48% of children under five suffered from stunting and 15% from wasting. The situation differs across the province, with highest rates of stunting for the Districts of Tharparkhar and Umerkot (63% and 66% respectively) and as low as 33% to 36% for Karachi's urban districts.

Under Pakistan's Vision 2025, nutrition has received increased attention, and the federal as well as provincial Governments have established a secretariat to coordinate and support its scale-up. Pakistan joined the global movement of Scaling-Up-Nutrition (SUN) in 2013. Having acknowledged that despite better economic conditions and a large agrarian population, Sindh's nutrition indicators have fallen behind those in the South Asia region. As a response, the Government of Sindh (GoS) recently adopted an Accelerated Action Plan for Reduction of Stunting and Malnutrition (AAP). The AAP has the ambitious goals of reducing stunting from 48% to 30% by 2021 and to 15% by 2026 by increasing and expanding coverage of multi-sectoral interventions proven to reduce stunting in the first five years of life. It comprises objectives and expected outcomes related to addressing the underlying causes (by sector) of stunting: health, population, sanitation and hygiene, agriculture (including livestock and fisheries), social protection, education, and behavioral change communication. Addressing stunting is important because of its impact on the economic development of the country. There are at least three channels via which stunting produces economic losses over the life cycle: (i) reduction in physical growth potential; (ii) neurological consequences that lead to poor learning and grade attainment; and (iii) increased susceptibility to chronic diseases in adulthood. These in turn have adverse effects on productivity, lost employment, premature death, healthcare costs, and opportunity costs of caregivers. In addition, in the short run, child under nutrition is a risk factor for child morbidity and mortality and leads to increased healthcare costs and forgone income for care givers. GoS has committed itself to match every USD of Overseas Development Aid (ODA) funding to address malnutrition by 0.5 USD domestic financing and has allocated 1 billion PKR per year for the next three years through their recurrent budget as an indication of this commitment and ownership.

The following section provides the detailed description of the proposed components and anticipated subprojects;

2.2. Project Components

To increase coverage and improve the quality of key services over the period 2017-21, the project will finance a mix of sectoral and cross-cutting interventions to improve behaviors and practices. These interventions will be supported by measures to strengthen social and behavioral change communication. The Project includes two components which will finance: (i) results contributing to the achievement of the AAP's

[3] Current Sindh Province population data may be found at: http://sindhbos.gov.pk/. Population growth rates are based on UN estimates

goals; and (ii) technical assistance and other inputs needed by the government to facilitate the implementation of identified activities under Component 1.

Component 1 (total estimated cost: US$50 million) would support expansion of a multi-sectoral package of services known to reduce stunting in the medium to long-term. Sectoral plans (for Health and Nutrition; Population and Welfare; Sanitation and Hygiene; Agriculture, Livestock & Fisheries; Education; and Social Protection) have been prepared and included in the AAP.

Component 1 would support the GoS by (i) expanding the number and quality of interventions listed above that will have a direct and immediate impact on reducing stunting in the medium to long-term; and (ii) creating an enabling environment and incentives to encourage the required behaviors that need to accompany the expansion of the multi-sectoral interventions in the following sectors:

- Health and Nutrition: The Department of Health (DOH) is currently implementing the Enhanced Nutrition for Mothers and Children Project in the nine most vulnerable districts of Sindh with a basic package of nutrition-specific services indicated in Table 4 above largely provided by the Lady Health Care Workers (LHW) Program and contracted NGOs in non LHW covered areas. The project also builds institutional capacity to plan, implement and monitor nutrition services. A similar set of field level interventions is under implementation in four additional districts, implemented by international NGOs and funded by the European Union (EU) which is ending mid-2017. New donor support (including EU and United States Agency for International Development (USAID) commitments) will be phased in to achieve the targets of the AAP in those districts. The AAP supported by this proposed project will scale up the basic package of nutrition services to the remaining districts over the next 10 years to ensure that the targets for the reduction of stunting are achieved. In addition, the project will support the development and conduct of a pilot to reach mothers and caregivers of young children (under 3 years) with guidance on early learning and stimulation through the LHW platform, since parents of children under 3 years are not reached by the education system's Early Childhood Development (ECD) program.
- Population: The GoS has developed a costed implementation plan to meet the Family Planning (FP) 2020 targets, which would also be critical to reducing levels of stunting. The plan for 10 districts is currently under implementation with a limited set of activities which are planned to be scaled up under the AAP. This project will incentivize the training of LHWs to provide FP counselling and supply of short term methods as well as special outreach FP services delivery camps to communities currently not reached with FP services.
- Sanitation and Hygiene: Building on the proposed Multi-Sectoral Actions for Nutrition Project (MSAN) in 13 districts to make villages open defecation free (ODF), the AAP plans to expand coverage across Sindh. In addition to supporting the ODF initiative, the project will promote an enhanced program on handwashing through capacity development of the Local Government Department (LGD), Village Organizations (VO) and school teachers who, in turn, will advocate and motivate communities to become 100% ODF. NGOs and private sector will be utilized to work as intermediaries to transform the behavior of villagers through special triggering and motivating interventions, such as cash reward to VO for developing communal infrastructure, rewards in the form of 3-5 latrines with handwashing stations in public schools and on a need and priority basis, support for rural water provision to deprived community could be provided. In addition, a female resident of the same village - called an 'Ambassador of Change (AOC)' -will be selected for advocacy with women and household dwellers.

- Agriculture (including Livestock and Fisheries): Building on a flexible and demand driven approach to be piloted in 20 union councils of four districts under the proposed MSAN Project, the department plans to gradually scale up to more districts with a high incidence of stunting. The focus will be on nutrition sensitive interventions that would contribute to enhancing household food diversity and access to high nutritive value foods, especially for the poorest and most food insecure households, and to consumption of high nutrition content food, especially by pregnant-nursing women, children under five and adolescents.
- Education: The two key interventions in the AAP are: (i) to improve access to Early Childhood Education (ECE) in the public schools and (ii) to improve knowledge of nutrition and healthy living among girls enrolled in high schools in the public sector. There is a need to develop curriculum and supplementary material for training of teachers and adolescent girls in schools. ELD is also operating an IT citizen engagement platform ("Ilmi") that could be used to further engage the larger community on the stunting agenda (including the importance of early stimulation of babies) by engaging School Management Committees (which include teachers, parents and administrators). This IT platform which provides useful education-related data could also be expanded to include data needs of other multi-sectoral interventions.

Component 2 (total estimated cost: US$13 million) would finance TA and selected inputs to support: (i) measures for implementing the pilot CCT program; (ii) development of an overarching multi-sectoral communications strategy for social and behavior change; and (iii) institutional arrangements for cross-cutting interventions including coordination and project management, citizen engagement, integrated multi-sectoral data information systems, and monitoring, evaluation and supervision. Specifically, Component 2 will focus on the following interventions:

- Social Protection/CCT (approx. $5 million): To create demand for nutrition services, promote behavioral change and increase uptake of health and nutrition services focused on the first 1000 days of life by incentivizing health check-ups of pregnant and lactating mothers, growth monitoring and immunization of children under 2 years of age through a regular and predictable cash transfer within targeted poor and vulnerable households, the project would pilot a CCT program. Beneficiaries would be selected from the existing cohort of poverty targeted beneficiary families as identified from the National Socio Economic Registry (NSER).
- Strategic Communication (approx. $1 million): To consolidate the existing sectoral communication plans, the project would support development of a comprehensive multi-sectoral communications package for dissemination and use by all key sectors for consistent and more effective messaging. The key messages will include those promoting exclusive breastfeeding up to 6 months; adequate complementary feeding 6 to 24 months; prevention of common childhood illnesses and accessing care early for those who need it; food diversification and consumption using locally available foods.
- Cross-cutting interventions (approx. $7 million):
    - Coordination Support: Coordination across diverse sectors and stakeholders to ensure synergistic action that is required including government, donor, and inter-sectoral coordination.
    - Project Supervision and Management: A secretariat led by the Nutrition Coordinator to the Chief Minister will be established and staffed by a core team comprising technical specialists (such as Project Management Specialists, Procurement and FM Specialists, Communication Expert, M&E Specialist, etc.). The Secretariat and the Planning and Development (P&D)

department will collaborate to ensure smooth implementation of the prioritized package of multi-sectoral interventions under the AAP.

- Nutrition Expenditure Tracking: An Integrated Financial Management Information System that operates at all three levels of government (e.g. Federal, Provincial & District) will be supported and will generate useful reports for policy makers and relevant stakeholders. Support will be provided to strengthen the system to track nutrition specific and sensitive allocations, disbursement and expenditure which will help to identify bottlenecks in managing financial resources for nutrition and will be the first time that the actual costs incurred at the various levels of implementation would be available. This will also support the Finance and Health Departments with evidence-based decision-making related to the provincial budget. Having this credible, timely and user-friendly data is a pre-requisite for assessing the level and quality of expenditure in districts and provinces and will strengthen accountability of the AAP and facilitate accelerated progress of the program to reduce stunting rates.
- Monitoring and Evaluation, Reporting and Impact Evaluation: Project support will include consolidation of different potential sources of information; strengthening the line department's Information Management System, including the use of the District Health Information System (DHIS) and scale up of the nutrition reporting system developed under the "Enhanced Nutrition for Mothers and Children Project", to ensure that all needed data is captured and collated through the system; establishing and maintaining third party monitoring for verification of DLIs; and conducting of specialized surveys to assess the stunting rate and other project relevant indicators.
- Citizen Engagement Platform: This will support advocacy and awareness efforts as well as for registering complaints and redressing grievances; and an added means of results verification (for the DLIs, provision of services, ODF status, CCT, etc.).

2.3. Institutional and Implementation Arrangements

Project management and coordination: Project management will be the responsibility of the Secretariat to the Nutrition Coordinator to the Chief Minister which will include a core team comprising technical specialists (such as Project Management Specialist, Procurement and Financial Management, Communication Expert, M&E Specialist, etc.). The Secretariat with support from the Nutrition Unit of the Planning and Development (P&D) Department will ensure smooth implementation and monitoring of the prioritized package of multi-sectoral interventions under the AAP.

Component 1 will be implemented within the framework of institutional arrangements established by the GoS to achieve the objectives of the AAP. For Component 1, the following institutional arrangements have been agreed to:

Provincial-level arrangements: A Provincial Task Force has been constituted as a decision-making body to direct and oversee all programmatic and operational activities envisioned by the AAP. The Task Force, under the Chairmanship of the Chief Minister (CM), includes Ministers and Secretaries of the relevant sectors and representatives from the civil society and academia. A Nutrition Coordinator to the Chief Minister will ensure coordination among the different sectors and implementing entities; the Nutrition Coordinator will be supported by a secretariat comprising of program, technical and fiduciary staff responsible for coordinating the implementation of the sectoral and thematic aspects of the AAP at all levels of the province.

A Provincial Steering Committee (PSC), created in 2015 as part of the Bank-funded Enhanced Nutrition for Mothers and Children Project, will be extended to perform as oversight committee for the project, include other additional authorities (e.g., BISP). The Steering Committee will meet every six months to provide policy direction, programmatic guidance, and overall coordination among the different sectors and stakeholders. The PSC is chaired by the Additional Chief Secretary of the Province and comprised of representation from P&D as well as the secretaries of all relevant sectors.

District level arrangements: All sectoral representatives (e.g., nutrition, health, local government, education, population welfare, agriculture, livestock, fisheries and social welfare department (SWD)) hold operational district level offices. Health, nutrition, and population interventions will be delivered through LHWs and Community Midwives (CMWs); where there are no LHWs, non-governmental organizations will be contracted to deliver the package of services financed by the project. The Local Government (LG) representative (Additional Director LG) will be the district focal person for water and sanitation, while Secretaries of respective Union Councils serve as the field force of LG Department. For agriculture, the government's agriculture extension workers are available at district level as Agriculture Officers.

Overall sectoral coordination at the District Level will be the responsibility of the Deputy Commissioner, assisted by the District Coordinator. Monthly district coordination meetings will be arranged by the coordinator and chaired by the Deputy Commissioner, with representation from all the relevant sectors. The District Coordinator, assisted by a communication officer and M&E officer, will coordinate with all the sectoral focal persons to ensure that: (i) quarterly work plans are prepared and implemented; (ii) activities are supervised and monitored; (iii) all sectors provide monthly reports to the District Commissioner; and (iv) consolidated reports are transmitted to the provincial level. In addition to the inter-sectoral reporting mechanisms, every sector will carry responsibility for their sectoral and technical reporting. Front line workers, like LHW and CMWs for the health sector, will compile information and present to the district line departments, district reports will then be shared with the provincial line departments for technical review and feedback for quality improvements.

At the Taluka level, GoS is represented by an Assistant Commissioner (AC) that reports to the Deputy Commissioner. The AC will be supported by a coordinator at the Taluka level responsible to ensure union council (UC) and village level coordination and implementation.

For Component 2, specifically for social and behavior change communication, CCT, and project management and coordination, the following institutional arrangements have been agreed to:

Social and Behavior Change Communication: To develop the widest possible awareness and ownership at various societal levels, the project will finance a multi-pronged outreach initiative aimed at both internal and external stakeholders and audiences. Each sector of the program will implement sectoral communication strategies aimed at achieving the stunting-reduction targets. In order to ensure a cohesive strategy, a Communication Coordination Cell will initially be established within P&D and then within the Secretariat for the Nutrition Coordinator. Staffed by Communication Specialists, the cell will develop an overall communication strategy and action plan in a consultative and participatory manner while ensuring synergies with sectoral communication strategies. It will also ensure quality control of outreach materials, coordinate event management, public information campaigns, advertisements for print and electronic media and help with relationship building with media and civil society. The social and behavior change communication for improving nutrition, hygiene and sanitation practices will build on the strategy and material developed jointly under the "Enhanced Nutrition for Mothers and Children" Project.

2.4. Results Monitoring and Evaluation

Monitoring and evaluation responsibilities have been established at provincial and district levels and will contribute to tracking of project indicators including DLIs. Following current practice, the respective sectors at the district level will collect, consolidate, and analyze data on the services provided and their utilization. Sector-specific monthly reports will be consolidated at the provincial level by the Secretariat for the Nutrition Coordinator to the Chief Minister (CM) with assistance from P&D. The Provincial programs in different sectors will have the responsibility for preparing and disseminating semi-annual results reports.

Semi-annually, these reports will be presented to the Provincial Steering Committee for review of the results and resolution of any bottlenecks to implementation. For the DLIs in particular, an independent third party will be contracted to verify semi-annually the DLIs reported through the routine system. The information obtained from the third-party monitoring will serve to confirm the routine system data and will be used to issue performance-based payments through EEPs. M&E arrangements (including M&E responsibilities, data collection requirements, and reporting frequency) will be provided in the Operations Manual.

All proposed project indicators can be collected through existing systems, but there is a need to consolidate the existing systems (often developed independently for specific purposes) into a well-coordinated and integrated provincial information management system for multi-sectoral interventions. To this end, a "bottom-up" approach will be used for collecting and analyzing the data, and capacity for this approach will be strengthened gradually through TA under Component 2. The project will also draw on the experience gained in the education sector to pilot and gradually expand the use of new information technology to improve the effectiveness of coordinated and overarching monitoring for the AAP and to enhance social accountability.

Chapter 3 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

3.1.1. Meteorology & Air Quality

3.1.1.1. Climatic regions of Sindh

Sindh is divided into three climatic regions: Siro (the upper region, centered on Jacobabad), Wicholo (the middle region, centered on Hyderabad), and Lar (the lower region, centered on Karachi). The thermal equator passes through upper Sindh, where the air is generally very dry. Central Sindh's temperatures are generally lower than those of upper Sindh but higher than those of lower Sindh. Dry hot days and cool nights are typical during the summer. Central Sindh's maximum temperature typically reaches 43–44 °C (109–111°F). Lower Sindh has a damper and humid maritime climate affected by the southwestern winds in summer and northeastern winds in winter, with lower rainfall than Central Sindh. Lower Sindh's maximum temperature reaches about 35–38 °C (95–100 F). In the Khirthar range at 1,800 m (5,900 ft) and higher at Gorakh Hill and other peaks in Dadu District temperatures near freezing have been recorded and brief snowfall is received in the winters.

Table 3.1: Mean Monthly Temperature & Rainfall

Months	Mean Annual Temperature (°C)	Mean Annual Rainfall (mm)
Mirpurkhas	27.2	200
Jamshoro	27.5	24.2

Source: Climate-Data.org

3.1.1.2. Ambient Air Quality and Noise

As per initial assessment of the sub-projects by the EMC field team, the air and noise levels are likely to be within the permissible limit of Sindh Environmental Quality Standards (SEQS).

3.2. Socioeconomic Profile

This section presents a broad profile of the prevailing socioeconomic situation in the two selected districts i.e. Jamshoro and Mirpurkhas.

Table 3.2: District-wise administrative profile

District	Area (sq.Km)	No of Talukas	No of Union Councils	No of Mouza
Jamshoro	11,402	4	28	174
Mirpurkhas	3,343	6	41	416

Source 1: District, Pakistan Emergency Situation Analysis program, by USAID; Source 2: Development Statistics of Sindh 2013 prepared by the Bureau of Statistics, Government of Sindh, Source

3.2.1. Demographic Profile

The average population growth rate for the Sindh province was 2.8 percent per annum, as of 1998 census. Table 3.3 provide the district specific data.

Table 3.3: Population figures district-wise

Districts	Population (based on 1998 census)			Population (projected for 2012)
	Male	Female	Total	
Jamshoro	312,574	269,520	582,094	839,496
Mirpurkhas	521,896	479,588	1,001,484	1,450,261

Source: Development Statistics of Sindh 2013 prepared by the Bureau of Statistics, Government of Sindh

3.2.2. Poverty

Poverty is increasing with passage of time in Sindh rural areas. In case of urban areas, poverty is more evident in slums and katchi abadies. The main causes of poverty are traditional agricultural practices, fragmented landholdings, non-availability of safe drinking water and sanitation facilities, low literacy rate, inadequate institutional arrangements for addressing social sector problems, and lack of access to social justice system. Table 3.4 provide the district specific data.

Table 3.4: Percentage of poor in Sindh districts

District	Poverty Classification	% Poor
Jamshoro	Very poor	49.8
Mirpurkhas	Very poor	47.93
Source: Poverty survey 2010-11, conducted under Benazir Income Support Program (BISP)		

3.2.3. WASH Indicators

In the MICS survey, mothers or caretakers were asked whether their child under age five years had an episode of diarrhoea in the two weeks prior to the survey. In cases where mothers reported that the child had diarrhoea, a series of questions were asked about the treatment of the illness, including what the child had been given to drink and eat during the episode and whether this was more or less than what was usually given to the child.

The overall period-prevalence of diarrhea in children under 5 years of age for selected district is 25.5 percent (Table 3.5).

Table 3.5: Percentage of children age 0-59 months for whom the mother/caretaker reported an episode of diarrhea, fever, and/or symptoms of acute respiratory infection (ARI) in the last two weeks, by district, Sindh, 2014;

District	Children (age 0-59 months) with diarrhea (%)
Jamshoro	20.2
Mirpurkhas	30.3
Source: Multiple Indicator Cluster Survey (MICS) Sindh 2014, Bureau of Statistics, Government of Sindh	

The distribution of the population by main source of drinking water is shown in Table 3.6. The population using improved sources of drinking water are those using any of the following types of supply: piped water (into dwelling, compound, yard or plot, to neighbor, public tap/standpipe), tube well/borehole, protected well, protected spring, and rainwater collection. Bottled water is considered as an improved water source only if the household is using an improved water source for hand washing and cooking.

Table 3.6: Percentage distribution of household population with improved and unimproved sources of drinking water

District	HH population with improved sources[4] (%)	HH population with unimproved sources[5] (%)
Jamshoro	90.6	9.4
Mirpurkhas	82.1	17.9
Source: Multiple Indicator Cluster Survey (MICS) Sindh 2014, Bureau of Statistics, Government of Sindh		

[4] Include piped water, tubewell/bore-hole, hand pump, protected well, rain-water collection, filtration plant, bottled water.
[5] Include unprotected well, tanker truck, cart with tank/drum, surface water, bottled water.

Table 3.7: Percent distribution of household population according to type of toilet facility used by the household, by district, Sindh, 2014			
District	**HHs population with improved sanitation facilities (%)**	**HH population with unimproved sanitation facilities (%)**	**Open defecation (no facility, bush, field) (%)**
Jamshoro	83.3	3.3	13.5
Mirpurkhas	48.2	10.8	41.1
Source: Multiple Indicator Cluster Survey (MICS) Sindh 2014, Bureau of Statistics, Government of Sindh			

Table 3.8: Percent distribution of household population according to type of improved sanitation facility commonly used by the household, by district, Sindh, 2014						
District	**Piped sewage system (%)**	**Septic tank (%)**	**Soakage pit latrine (%)**	**Ventilated improved pit latrine (%)**	**Pit latrine with slab (%)**	**Compositing toilet (%)**
Jamshoro	37.0	0.3	22.8	20.3	1.9	0.0
Mirpurkhas	29.5	0.0	10.2	2.1	6.4	0.0
Source: Multiple Indicator Cluster Survey (MICS) Sindh 2014, Bureau of Statistics, Government of Sindh						

Table 3.9: Percent distribution of household population according to type of unimproved sanitation facility commonly used by the household, by district, Sindh, 2014			
District	**Flush/Pour flush (%)**	**Pit latrine without slab/Open pit (%)**	**Bucket (%)**
Jamshoro	1.0	1.2	0.0
Mirpurkhas	0.5	4.4	0.0
Source: Multiple Indicator Cluster Survey (MICS) Sindh 2014, Bureau of Statistics, Government of Sindh			

Table 3.10: Water and sanitation facilities in schools		
District	**No. of Schools with washrooms**	**No. of schools with drinking water facility**
Jamshoro	484	284
Mirpurkhas	1082	719
Source: Sindh Education Profile 2014-215, Reform Support Unit (RSU), Government of Sindh		

3.2.4. Nutrition Status

More than four out of ten children under the age of five in Sindh are underweight (42 percent) and 17 percent are classified as severely underweight[6].

Table 3.11: Percentage of children under age 5 by nutritional status according to three anthropometric indices: weight for age, height for age, and weight for height, by district, Sindh, 2014			
District	**Underweight[7] (%)**	**Stunting[8] (%)**	**Wasting[9]**
Jamshoro	50.8	54.4	23.8
Mirpurkhas	58.1	55.4	26.5
Source: Multiple Indicator Cluster Survey (MICS) Sindh 2014, Bureau of Statistics, Government of Sindh			

[6] MICS 2014, Sindh
[7] MICS indicator 2.1a and MGD indicator 1.8 – Underweight prevalence (moderate and severe), percentage below – 2 SD,
[8] MICS indicator 2.2a - Stunting prevalence (moderate and severe), percentage below – 2 SD,
[9] MICS indicator 2.3a - Wasting prevalence (moderate and severe), percentage below – 2 SD,

In Sindh province, Global Acute Malnutrition (GAM) rate of 17.5% and Severe Acute Malnutrition (SAM) rate of 6.6% was recorded in the NNS 2011[10].

Table 3.12 and 3.13 provide the district specific data.

Table 3.12: Malnutrition Prevalence in some Districts in Sindh Province						
District	Based on WHO reference			Based on MUAC (Mid Upper Arm Circumference)		
	Global acute Malnutrition (%)	Moderate acute Malnutrition	Severe acute Malnutrition	Global acute Malnutrition	Moderate acute Malnutrition	Severe acute Malnutrition
Shikarpur	13.8	10.4	3.4	12.8	10.0	2.8
Umerkot	28.8	-	10.1	19.1	-	5.8
Dadu	14.3	-	2.6	10.5	-	3.8
Thatta				17.2	10.3	6.9
Source: SMART Survey Reports 2013-2014						

Table 3.13: Malnutrition Prevalence in Sindh		
Indicator	North Sindh[11] (%)	South Sindh[12] (%)
Global Acute Malnutrition (GAM)	22.9	21.2
Severe Acute Malnutrition (SAM)	6.1	2.9
Chronic Malnutrition	53.9	51.8
Maternal Malnutrition (moderate malnutrition)	11.2	10.1
Maternal Malnutrition (severe malnutrition)	1.9%	0%
Source: Flood-Affected Nutrition Surveys 2010, Department of Health, GoS		

3.2.5. Healthcare Facilities

These districts do not have a satisfactory network of healthcare services in the public sector. Tables 3.14 present overall status of healthcare facilities in the districts. As for infrastructure, staff residences were not available at the number of BHUs and Taluka Headquarter (THQ) hospitals. There is a shortage of blood banks and adequate number of pediatric nurseries at the THQ hospitals. There is a shortage of human resources at many of the health facility levels. There are severe shortages of general items. Most health facilities do not have the required supplies of drugs, vaccines, etc. Table 3.15 provide the district specific data.

Table 3.14: District-wise health profile					
District	**Hospitals**	**Dispensaries**	**Mother Child Health Centers (MCHCs)**	**Basic Health Units (BHUs)**	**Rural Health Centers (RHCs)**
Jamshoro	8	47	2	20	5
Mirpurkhas	12	76	14	38	5
Source: Health Profile of Sindh (District Wise) 2015, Bureau of Statistics, Planning and Development, Government of Sindh					

Table 3.15: District-wise medical staff profile			
District	**Population served per doctor**	**Population served per Nurse**	**Population served per Bed**
Jamshoro	3,612	36,875	1,430

[10] SQUEAC – Province Sindh, Pakistan; April – May 2013
[11] Ghotki, Jacobabad, Kashmore, Khaipur, Larkana, Shahdadkot, Shikarpur and Sukkur districts
[12] Dadu, Hyderabad, Nawabshah, Jamshoro, Mitiari, Noushero Feroz and Thatta districts

Mirpurkhas	4,394	15,763	2,072
Source: Health Profile of Sindh (District Wise) 2015, Bureau of Statistics, Planning and Development, Government of Sindh			

3.2.6. Educational Facilities

The education status is quite poor in these districts. There are primary, middle, matric and higher secondary schools in these districts. Most of the schools are understaffed and lack adequate facilities. Low literacy rates in the districts are alarming. Table 3.16 provide the district specific data.

Table 3.16: District-wise educational profile

District	No. of Schools			Enrolment			Teachers		
	Functional	Closed	Total	Boys	Girls	Total	Male	Female	Total
Jamshoro	635	152	787	49,628	32,879	82,507	2,098	803	2,901
Mirpurkhas	1852	314	2166	100,138	53,916	154,054	4,049	1,755	5,804
Source: Reform Support Unit (2014-2015), Education and Literacy Department, Government of Sindh									

Table 3.17: District-wise literacy rate

District	Literacy rate (%)[13]		
	Male	Female	Total
Jamshoro	69	38	44
Mirpurkhas	61	27	46
Source: Pakistan emergency situation analysis 2014, district profiles, USAID			

3.2.7. Agriculture, Livestock Activities and Use of Pesticide in Sindh

The major field crops sown in Sindh consist of wheat, cotton, rice, and sugarcane which utilize 68% of the total cropped area. Sindh also produces horticulture crops of mango, banana, and chillies are the primary crops grown in this area. Among the horticultural crops, 73% bananas, 34% mangoes, and 88% of chilies are produced in Sindh.

Table 3.18: Crops area and production (2011) in target districts

Crop / Area Production	Mirpurkhas	Jamshoro
Jawar (Sorghum)		
Area (H)	191	590
Production (MT)	72	595
Bajra		
Area (H)	493	504
Production (MT)	205	394
Maize		
Area (H)	115	434
Production (MT)	70	553
Gram		
Area (H)	……..	713
Production (MT)	……..	758
Barley		
Area (H)	28	131
Production (MT)	14	75
Rapeseed & Mustard		
Area (H)	3609	560
Production (MT)	4085	526

[13] 10 years and above.

Note: Area (Hectare = H) and Production (Metric Tons = MT): Data for vegetables and pulses on Province Basis could not be segregated; The year 2011 remained abnormal due to heavy monsoon rains in Sindh, mainly in lower Sindh that affected the area under cultivation and production. Source: Development Statistics of Sindh 2012.

Use of Fertilizers, Manures, Pesticides and Herbicides by Size of Farm

Following table provides the data on use of pesticides of overall Sindh and selected districts.

Area	Total Farms	Farms reporting use of									
		Fertilizers & Manures		Fertilizers Only		Manures Only		Pesticides		Herbicides	
		Number	%	Number	%	Number	%	Number	%	Number	%
Sindh	*1115285*	*187513*	*17*	*671206*	*60*	*13587*	*1*	*412430*	*37*	*196495*	*18*
Jamshoro	27054	2452	9	6705	25	-	-	5112	19	1598	6
Mirpurkhas	74308	18659	25	50147	67	83	*	38704	52	18126	24
* value less than 0.5											
Source: Agricultural Census 2010: Government of Pakistan, Statistics Division, Agricultural Census Organization											

3.2.8. Gender Issues

Generally, women in Pakistan are among the poorest and the most vulnerable sections of the society. Women's access and control over productive resources is limited, which ranks Pakistan amongst the countries with high maternal and infant mortality rates[14]. According to WB, the maternal mortality ration (MMR) was 178 per 100,000 live births in 2015, down from 431 in 1990[15]. Vulnerability of women to discriminatory treatment varies across classes, region, and the urban / rural populations. The indicators for Gender Issues are concerned with gender parity in wage employment, political representation and education[16].

Presently, women comprise a small percent of the public sector employees in the province; the quota for women in government jobs was 7%, as of 2015[17]. Those who are employed have limited horizontal mobility and are limited to social sector departments like education and health. Labor force participation rates remain low for women overall, at just 15.88 percent for the province as whole, compared to 70.3 percent for men[18]. Representation of women at the decision making level is also low. The provincial assembly of Sindh has 168 members, of which 29 are women; all of the women legislators have been nominated against seats reserved for women[19].

There is high evidence of gender disparity across the province of Sindh. The problem is more acute in rural areas, which needs to be addressed. GPIs for rural areas are likely to be much lower than those recorded for urban areas[20]. Gender disparity in education is a considerable and complex challenge for the Government of Sindh. The problem persists across all education indicators (literacy, net primary enrolment, and particularly primary school completion). Furthermore, Gender Parity Index (GPI[21]) for primary and matric schools (high

[14] World Bank Indicators - Data
[15] Maternal mortality ratio (modeled estimate, per 100,000 live births) by World Bank
[16] Report On The Status Of Millennium Development Goals Sindh – October 2012 UNDP
[17] Sindh increases women's job quota to 7pc – The News
[18] Report On The Status Of Millennium Development Goals Sindh – October 2012 UNDP
[19] Members by District – Provincial Assembly of Sindh, 2013 till Date
[20] Report On The Status Of Millennium Development Goals Sindh – October 2012 UNDP
[21] Gender Parity Index (GPI) primary or secondary is defined as net enrolment rate of females at primary or secondary level divided by net enrolment rate of males in primary or secondary level

school) for the province consistently fall below the national average, and the extreme variation across the districts requires policy measures to address these disparities and even out the progress.

Table 3.19: GPIs at Different Levels of Education (Females per Male)

District	GPI Primary	GPI Middle	GPI Matric
Jamshoro	0.93	0.67	0.34
Mirpurkhas	0.61	0.81	0.52

Source: Pakistan Social and Living Standards Measurement survey 2014-2015

3.2.9. Infrastructure Profile

There are wide variations in the availability of infrastructure facilities in the urban and rural areas as well as in different regions of the districts. Whereas availability and condition of roads in the cities is fair, it is quite deplorable in rural areas. As a part of its development agenda, the Government of Sindh is focusing attention on building of infrastructure. Construction of roads under various programs has somehow improved access to the most remote locations in these districts.

Jamshoro	Jamshoro district has only 179 kilometers of good quality roads, which are inadequate for the area and its population. A National Highway (Indus Highway, N55) and Express Way (M-9) connect Jamshoro with other major cities of the province. The district headquarter of Jamshoro is linked with its taluka headquarters of Thano Bula Khan, Manjhand and Sehwan through metaled roads.
Mirpurkhas	Mirpur Khas district has only 716 kilometers of good quality roads, which are grossly inadequate for the area and its population4. A Provincial Highway connects Hyderabad with Mirpur Khas via Sultanabad, Tando Allahyar and Tando Jam. The district headquarter of Mirpur Khas is linked with its taluka Headquarters of Digri and Kot Ghulam Muhammad through metaled roads.

3.3. Reconnaissance Surveys

After initial information was collected and reviewed, Reconnaissance Survey (RS) in two district was conducted to collect primary information for the sub-projects. Profiles of each district were made during the RS depicting varied baseline conditions. 70-90 % of the population in the villages openly defecate. Unemployment is the also a main problem for females in villages. In fact, not a single female is educated in the some villages.

Most part of Mirpurkhas District is subjected to waterlogging and salinity. Agriculture through irrigation is the practice in the district which is the primary occupation of villagers and secondly cattle farming. Consequently in Jamshoro, arid conditions prevails throughout the year make it difficult for agriculture through irrigation. The dug wells is the only source of drinking water in the areas in Jamshoro District. The underground water quality is not suitable for drinking with varying levels of hardness and Total dissolved solids. The detailed results are presented in the below table:

Methodology

RS was focused on collection of information on various environmental and social aspects including but not limiting to physical, biological, hydrological, health and social environment. The survey comprised collection of information on:

- Air quality and noise
- Water & ground water resources;

- Community water sources
- Community issues such as disturbance, health, etc.;
- Archaeological aspect;

A checklist method was used for environmental reconnaissance survey. Following information was collected:

District: _____ Union Council: _____ Date of Survey: _____

Name of Nearby Village: _____ Lat/Long: _____

Social Reconnaissance Survey

The other component of the survey would attempt to assess the social and economic status of the sample villages in the target districts. The following aspects were identified to highlight the social and economic profiles of beneficiaries.

- Number and size of household
- Major Disease prevailing
- Source of Drinking water
- Monthly income / Employment status

Findings of Reconnaissance Survey

Jamshoro

Village Name: **Ahsaan Palari Goth**	Union Council: **Thanno Bulla Khan**
Socioeconomic Indicators	***Description***
Number of Households	25
Average Household Size	5
Income Level	Low (Less than Rs. 10,000)
Major Occupations	Mining & Livestock
Major Diseases	Fever/Common Cold & Diarrhea
Source(s) of Drinking Water	Hand pump, well-water
Environmental Indicators	***Description***
General Land Use	Agriculture / Mining
Environmentally Sensitive Areas	No
Environmental Components: a. Air and Noise Quality b. Surface Water Quality c. Groundwater Quality	(ESMF Team/Locals perspective) a. Fair b. N/A c. Not fit for human use
Existing Groundwater Table (ft)	155
Pictorial Overview of the Villages	

	
Livestock in the area	Mosque inside the village

Mirpurkhas

Village Name: **Haji Jafar Hakro**	Union Council: **Mirpurkhas**
Socioeconomic Indicators	***Description***
Number of Households	150
Average Household Size	6
Income Level	Low (Less than Rs. 15,000)
Major Occupations	Agriculture & Livestock
Major Diseases	Common Cold, Lungs Diseases, Skin Disease, & Diarrhea
Source(s) of Drinking Water	Hand pump as well as Canal water
Environmental Indicators	***Description***
General Land Use	Agriculture
Environmentally Sensitive Areas	No
Environmental Components: d. Air and Noise Quality e. Surface Water Quality f. Groundwater Quality	(ESMF Team/Locals perspective) d. Good e. Turbid and not fit for human use f. Not fit for human use
Existing Groundwater Table (ft)	20
Pictorial Overview of the Villages	
	
Livestock is another main occupation	View of the village

Chapter 4 Stakeholder Consultation

Local communities are the direct beneficiaries of the SSS and A4N projects. Community perceptions of the expected outcomes and the implementation process are necessary ingredients for ascertaining project success and adjustments to planned interventions. Moreover, organized community groups (VOs, VDOs, etc.) have an important role in promoting the program concepts, identifying target households, and monitoring project activities at the local level.

Consultations with local communities were carried out in line with the following objectives:

- Inform the local communities of the project concepts and planned project interventions
- Ascertain the community's perceptions of the project concepts and planned project interventions
- Identification of potential positive and negative social and environmental impacts

Methodology

A pre-designed questionnaire was developed for both the projects that covered the project activities, the implementation mechanism, social acceptability, community readiness and other socio-economic aspects. Focus Group Discussions (FGDs) were used as the primary consultation tool for engaging stakeholders. In each district 1 FGD was held with community representatives that were well-informed of local issues and were able to voice their concerns and suggestions. Various community representatives including village elders, farmers, women and youth were part of the consultation sessions. Field team was deployed to conduct the survey in both districts from 7-9 January, 2017 for Jamshoro and Mirpurkhas District for this addendum.

The villages visited in each district, along with the respective coordinates are shown in following table:

Villages Consulted for SSS and A4N Projects				
S. No.	**Districts**	**Villages**	**Project Focus**	**Coordinates**
1.	**Jamshoro**	Ahsaan Palari Goth	SSS and A4N	25°13'43.95"N 67°41'8.08"E
2.	**Mirpurkhas**	Haji Jafar Hakro	SSS and A4N	25°28'26.47"N 68°53'26.33"E

Consultation Feedback

The comments and suggestions received from local community representatives have been detailed in the following table. Feedback has been separately elucidated for each village. The list of participants and pictorial representation are also illustrated after each summary.

District: **Jamshoro**	Union Council: Thano Bhula Khan	Date: **07 January 2017**
Name of Village: **Ahsaan Palari**		Lat/Long: **25°13'43.95"N 67°41'8.08"E**
Interviewers: Mr. M. Rafique (Mine Labour) & Anwar shah (Mine labour)		
Discussion Summary:		

- No recent developmental activities were carried out by any government departments, local organization or NGO's. No Local Government representatives have ever visited their village.
- They don't have utility services like electricity, gas and water.
- They are using dug well water for the drinking purpose, depth of well water around 300m deep.
- Two wheel motorbike & donkey cart are used by villagers for the travelling purpose.
- They do not have any kind of male and female committees which resolve the village issues or matters.
- There is no school available in the area and major occupations of villagers are mining & livestock. Average monthly household income is around 8,000 PKR to 10,000 RPS per house.
- There is Open Defecation in the village because of unavailability of latrines in the area. The villagers are well known with the problems associated with open defecation but cannot build latrines because of lack of funds.
- Regarding A4N, due to the unavailability of water, villagers mainly related to livestock and said that the land is unable to grow any crops.
- The common diseases among the villagers are Fever, Common Cold, Diarrhea, Hepatitis, Typhoid, Cough & Malaria etc. The villagers are fully aware of the diseases caused due to unhygienic conditions and unhealthy environment.
- Villagers were aware of the negative impacts of open defecation but find it very difficult for them to build latrines and enclosed washrooms. Villagers supported the SSS program and affirmed that if any organization would provide all the facilities in constructing the toilets, villagers would definitely use the toilets and eliminate the open defecation practices.

S.No.	Name of Participants	Occupations
01.	M. Rafique	Mine Labor
02.	Anwar shah	Mine Labor
03.	Rafaqat	Shephard
04.	Ghulam M. Somoo	Shephard

District: **Mirpurkhas**	Union Council: Mirpurkhas	Date: **08 January 2017**
Name of Village: **Haji Jaffar Hakro**		Lat/Long: **25°28'26.47"N 68°53'26.33"E**
Interviewers: Mr. Allah Ditta (Shephard and Resident) & Ali Mangi		

Discussion Summary:

- Overall community is Muslim with the male ratio (58%) and female ratio (42%). Sindhi & Siraiki language are spoken in the area.
- Regarding A4N, people said that they already grow vegetables at their backyard but on need basis and some crops are lost due to pests and extreme heat.
- No local government is active in the area and no interaction between local government representatives and local communities have taken place in the recent past.
- There is a strong feudal system in the village and villagers have little control over their income and working hours. Decision-making on village affairs is limited to feudals.
- There is open defecation in the village despite of availability of latrines which have been altered to storage areas. Villagers told us that using the existing latrines are a hassle as these only consist of wall boundaries and no other facilities. Poverty is rampant in this village and villagers struggle to meet their daily necessities and therefore latrines is not their priority.

• Villagers were not aware of the negative impacts of open defecation and with their current impoverished state, feel it would be very difficult for them to adopt a new latrine system. There is no culture to wash hands after defecation. The common diseases among the villagers are Fever, Diarrhea, Malaria & Typhoid etc. • Villagers said they are willing to adopt a proper latrine system if any organization would provide all the facilities in constructing the toilets and execute the system with proper functions and continuous maintenance mechanism.		
S.No.	**Name of Participants**	**Occupations**
01.	Allah Ditta	Shephard
02.	Ali Mangi	Resident / Farmer
03.	Rab Nawaz Ali	Resident / Farmer
04.	Ghullam Ullah	
05.	Saeed Jan	
06.	Haider	
07.	Raoof	
08.	Lateef Mangha	
09.	Zafar	
10.	Zahid Hassan	

Chapter 5 IMPACT ASSESSMENT AND RECOMMENDED MITIGATION MEASURES

This Chapter assesses the potential impacts of the proposed project on environment and people. Also provided in the Chapter are the generic mitigation measures to minimize if not eliminate the potentially negative impacts, in order to ensure that the interventions under the proposed project do not cause environmental and/or social impacts beyond the acceptable level.

5.1. Assessment of Potential Impacts and Generic Mitigation

The potentially negative impacts identified with the help of environmental screening discussed in Section 6.2 are assessed in the subsections below. The generic mitigation measures have also been provided here; additional measures may be added as a result of the subproject-specific environmental assessments to be carried out during the Project implementation.

5.1.1. Subprojects Siting and land issues (financed under the project)

It will be ensured through screening checklist (sample presented in annexures of existing ESMF of MSAN) that the subproject avoids any sensitive locations as well as land acquisition.

In case of SSS, Sub-project sites will be located within school compound. However, preliminary screening will be undertaken to ensure that the land used for toilets does indeed belong to the school, there is no dispute over it and that there are no squatters/encroachers using this land. In case of A4N, Sub-project sites will be located on agriculture department land. If joint / community cattle shed will be built for demonstration, it will be acquired through Voluntary Land Donation (VLD).

5.1.2. Impact for Anticipated Subprojects and Mitigation Measures

Anticipated Subprojects include implementation of hard components in the field like procurement of material, Toilet construction/rehabilitation, drilling of borehole and installation of hand pumps, establishment of kitchen gardens, livestock sheds and fisheries ponds in demonstration plots and procurement of supplies under A4N fund. The impacts associated with these activities are water/groundwater contamination; solid waste management; air quality issues, primarily related to dust generation; noise; and occupational and community risks. As part of ESMF, generic impact assessment has been conducted in the following sections:

Following a description of impacts on each environmental and social components is described along with mitigation measures:

Anticipated Impacts	Mitigation Measures
Land Issues	
Land on which toilets are to be built may be disputed/not belong to the school or be used by people for accommodation or livelihoods.	- Involuntary Resettlement Screening Checklist to be used to check the land belong to the school or free from any disputes. - Village Organizations and LGD officials will be taken onboard for the identification construction site in schools.
land may be acquired for small-scale interventions that cannot be acquired through Voluntary Land Donation (VLD) procedures	- The subprojects will be established on the land owned by Agriculture department. However, private land if acquired will be through VLD procedure. If VLD will not be possible, the RPF as part of this report will be applied. - It will be ensured that no involuntary resettlement takes place for these subprojects.

Anticipated Impacts	Mitigation Measures
	- Complete documentation will be maintained for VLD. - Valuation and compensation of affected assets of community should be in line with RPF/Sub-projects RAPs and considered before the field activities.
Impediment to access of residents and students	
Any construction in schools can lead to blockage of access for students as well as it may block residents to commute their homes.	- Environmental and Social Screening Checklists to be used to check the access. - Adequate monitoring of construction site will ensure that the construction material will not be stacked in the routes of commuting
Labor Issues	
Conflict may arise between construction labor and community if labor not hired locally.	- Preference will be given to labor from locally skilled and unskilled workers of community for the construction of toilets in schools.
Also there could be a possibility that labor is forced to work on the site without providing wages or delayed in payments while performing their job.	- PD and SS under directorates will ensure that certain clauses will be added in the contract documents of IPs i.e. not to force labor to work and official minimum wages to be paid if the laborers are contracted by the community. - Consultation with labor will be ensured by IPs and ESFPs.
Impacts on Women, Children, and Vulnerable Groups	
Impact on vulnerable groups like Women, poor households, women headed households.	- Women's participation is already included in project interventions like development Female farmer field schools (F3S), construction of girl toilets, focusing on women as the main agriculture producers. - Lady Extension Workers (LEW) will be engaged as contingent staff for short period, so as, to work with women beneficiaries. (PC-I of A4N) - Environmental screening checklist will provide first stage information about impacts on poor, women and other vulnerable groups including needs and priority for social and economic betterment; - IPs and TSPs will ensure the active participation of women in project interventions as well as adequately consulted. - In awareness raising under SSS, women share should be more compared to men. - Ensure participation of vulnerable groups in project activities through consultations, to ensure planned investments take the well-being of such groups into consideration
Conflicts	
It is anticipated that conflicts among communities may arise during project implementation.	- Conflicts resolution will be done through implementation of Grievance Redress Mechanism (GRM).
Consultation	
It is anticipated that stakeholders and communities may not be participated or consulted in project interventions	- Consultation with stakeholders should be undertaken at project design, inception and implementation stages and as per consultation framework provided in table 7.8.
Air Quality Deterioration	
Handling of cement and other dusty materials and handling and storage of aggregates in concrete plants; during construction of structure of Latrines in schools may lead to dust generation and nuisance to the school children and nearby households. However, localized and relatively minor air quality impacts will occur.	- Soil and temporary spoil piles should be covered or sprayed with water if generating dust. - Latrine Construction sites including Soil piles in schools should be barricaded to avoid material escape, generation of dust and access to children. - Construction machinery, generators, and vehicles will be kept in good working condition, minimizing exhaust emissions. - Tractor loads should be covered with any suitable material.

Anticipated Impacts	Mitigation Measures
In Food Production and Management (component B of A4N), it is envisaged that there will be no generation of air emissions caused by the development of Demonstration plots, localized and relatively minor vehicular emissions will occur if vehicles will be used to prepare demo plots but the emissions will be dispersed in open rural environment.	- No measures required.
Water Consumption and Conservation	
Construction activities in case of SSS can have insignificant impact on hydrology and ground water levels of the area due to low water requirements in case of toilet/hand washing station construction.	- No measures required.
Water availability should be considered as key factor while implementing interventions under A4N sub-project. Water Conservation is another component that should be introduced in the program.	- In Mirpur district, water logging persisted due to availability of plenty of water due to the presence of IBIS. Interventions supporting water availability should be considered like fish farming, agriculture through irrigation. However, in water scarce areas like Jamshoro district, careful planning will be required while implementing interventions under A4N. Livestock is the main livelihood of these areas and it should be promoted through better practices. However, to support the Nutrition Sensitive agriculture (NSA), crops which requiring less water and are saline water tolerant may be introduced. This idea will support the scarcity of water in the arid region. - Use of compost, or decomposed organic matter as fertilizer, has been found to improve soil structure, increasing its water-holding capacity.
Surface and Ground Water Quality	
The construction of Toilets and installation of boreholes for water supply can have following impacts: - Inadequate design of Latrines resulting in contamination of groundwater e.g. in case of pit latrines developed in high water level areas. - Inadequate design of Latrines resulting in contamination of nearby water wells / dug wells. - The contamination chances will be increase in conditions like post-monsoon season, flood conditions, waterlogging, shallow water table and sandy soils - Inadequate disposal of sludge material after filling of pit/septic tank will result in contamination of land, surface water resources, generation of vector and spread of disease; - Sediment laden runoff resulting from borehole drilling; - Groundwater contamination from backfilling of unsuccessful boreholes.	- Guidelines for Construction of Latrines should be followed as presented in Annexures of existing ESMF of MSAN. - It will be ensured that the wastes are not released into any drinking water source, cultivation fields, or critical habitat.
- Under A4N, use of harmful pesticides and chemical fertilizer in demo plots leading to water pollution, pesticide residues in crops - contamination of local water body from animal faeces generated via livestock sheds - Inadequate pesticides use and chemical fertilizers in demo Kitchen gardens may contribute in water	- *Promotion of the use of Bio-pesticides*: Bio-pesticides are pesticides derived from natural materials (animals, plants, microorganisms, certain minerals). As an alternative to traditional pesticides, bio-pesticides can reduce overall agricultural pollution because they are safe to handle, usually do not strongly affect beneficial invertebrates or vertebrates, and have a short residual time.

Anticipated Impacts	Mitigation Measures
contamination. Runoff from all categories of agriculture leading to surface and groundwater pollution. Pesticide leaching occurs when pesticides mix with water and move through the soil, ultimately contaminating groundwater. The amount of leaching is correlated with particular soil and pesticide characteristics and the degree of rainfall and irrigation. Leaching is most likely to happen if using a water-soluble pesticide, when the soil tends to be sandy in texture, if excessive watering occurs just after pesticide application, if the adsorption ability of the pesticide to the soil is low. Leaching may not only originate from treated fields, but also from pesticide mixing areas, pesticide application machinery washing sites, or disposal areas. - Runoff of nutrients, especially phosphorus, leading to eutrophication causing taste and odor in public water supply, excess algae growth leading to deoxygenation of water and fish kills. - Agriculture contributes greatly to soil erosion and sediment deposition through intensive management or inefficient land cover. - The environmental impact of Fish farming is primarily a function of feed composition and feed conversion (fecal wastes), plus assorted chemicals used as biocides, disinfectants, medicines, etc. Waste feed and fecal production both add substantial nutrient loadings to aquatic systems.	- *Use of Organic fertilizer*: Organic fertilizers are fertilizers derived from animal matter, human excreta or vegetable matter (e.g. compost, manure). There's little to no risk of toxic buildups of chemicals and salts that can be deadly to plants. Organic fertilizers are renewable, biodegradable, sustainable, and environmentally friendly. - *Integrated Pest Management (IPM)*: Agriculture and Livestock Departments, Government of Sindh has developed Integrated Pest Management Plan (IPMP) for "Sindh Agricultural Growth Project (SAGP)" in August 2013. The SAGP is focused on horticulture crops because these commodities have a small farmer focus, have significant involvement of women in production and processing. The IPMP of SAGP covers features including a) minimize pesticide usage while increase the productivity of agricultural crops targeted in the SAGP through Integrated Pest Management (IPM), Integrated Plant and Soil Nutrient Management (IPSNM) and Good Agricultural Practices (GAP), b) monitor the pesticides management such as their usage before, during and after, and the level of pesticide residues on targeted crops in normally-treated and IPM-treated areas and to disseminate information to stakeholders on the usefulness of undertaking IPM practices, and c) raise awareness of all stakeholders about the IPM approach to crop management, and train extension agents and farmers through FFS system to become practitioners of IPM. - A model IPMP has been prepared under MSAN Project which is based on principals devised in SAGP IPMP which is the principal document of Agriculture and Livestock Departments for horticulture crops as well as based on the provisions of WBG OP 4.09. This model IPMP will be helpful for Directorate of Agriculture to prepare project specific IPMP and to mitigate and include the rational use of pesticides. - Growing crops in a systematic arrangement of strips or bands across the general slope (not on the contour) to reduce water erosion. Crops are arranged to that a strip of grass or close-growing crop is alternated with a clean-tilled crop or fallow. - Organic debris produced by harvesting is easily mineralized into leachable Nitrogen. Steps to reduce leachable Nitrogen includes planting of "green manure" crops, and delaying ploughing of straw, roots and leaves into the soil.
Solid Waste Management	
Typical solid waste generated during construction include waste concrete, empty cement bags, excavated soil (especially soil from drilling of borehole), etc. This waste has the potential to cause negative impact on the surroundings if not properly managed and disposed of. It is likely to block nearby drainage channels that can ultimately cause localized flooding during the monsoon. Windblown debris is a nuisance to the nearby community. Poor waste	- Construction sites should be equipped with temporary refuse bins. - Wastes should be routinely collected from the designated area and disposed at waste disposal facilities. - The subprojects will be designed employing technologies that minimize generation of solid wastes - Recycling of solid waste will be carried out as far as possible and practical.

Anticipated Impacts	Mitigation Measures
management practices would result in short term negative impact on the aesthetics of the surrounding. Inadequate disposal of sludge material after filling of pit/septic tanks connected with the toilets will result in contamination of land, surface water resources, generation of vector and spread of disease;	- Composting of biodegradable waste will be considered and adopted if practicable. - Disposal of solid waste will be carried out in a manner that does not negatively affect the drinking water sources, cultivation fields, irrigation channels, natural drainage paths, the existing waste management system in the area, local routes, and general aesthetic value of the area.
Establishment of ponds for fish farming will generate excavated soil. Generation of biological solid waste generated from livestock sheds and kitchen gardens (demo plots) may pollute land and water bodies if not handled properly.	
Noise	
During the construction and drilling of borehole, noise will be generated from the operation of machinery. These construction activities may cause discomfort to local residents. Besides the construction works will be encouraged during daytime and the noise would be generated temporarily. Therefore any adverse impact on residents and fauna is negligible.	- Machinery operation and high noise activities should be carefully planned and scheduled. - Where that is not possible, high noise activities should cease between 22:00 and 06:00 hrs.
Occupational Health and Safety	
The construction of civil works such as toilet construction, tilling of demo plots, installation of livestock sheds etc. poses an inherent risk of injury to labor from accidents. Poor housekeeping practices will lead to stagnant water as breeding grounds for insect vectors (causing malaria etc.). Hazards from handling equipment, ergonometric stress, lifting heavy materials etc. may cause injury to the labor.	To mitigate these potential H&S impacts prior to the commencement of civil works, following measures will be adopted: - Identify and minimize, so far as reasonably practicable, the causes of potential hazards to workers, including communicable diseases such as HIV/AIDs and vector borne diseases; - Avoid stagnation of water and initiate drainage/cleanup of stagnant water. - Provide for the provision of appropriately stocked first-aid equipment at work sites; - Provide for the provision of appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate outerwear, boots and gloves; safety helmets; - Provide training for workers for the use of PPE; - WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented; - Include procedures for documenting and reporting accidents, diseases, and incidents; and - All safety precautions will be taken to address safety hazards for the nearby community. These precautions may include safety/warning signage, safety barrier around the construction site. - The construction contracts will include appropriate clauses to protect environment and public health. The present ESMF will be included in the bidding document.
Investment for the procurement of supplies and farm implements may contribute to affect environmental components e.g. Procurement and use of adulterated pesticides; Excessive use of chemical Fertilizer; Congregation of livestock near water point and risk of nitrate pollution from their droppings.	Following measures shall be employed to ensure sustainability of the interventions: - Judicious use of the irrigation water, chemical inputs and use of alternate techniques (such as integrated pest management, using disease-resistant seeds, and mulching) will be promoted through awareness raising and capacity building initiatives. - Crop rotation practices will be promoted to avoid soil fertility degradation.

Anticipated Impacts	Mitigation Measures
	- The capacity building program will also include safe handling of hazardous substances such as pesticides. - Banned and adulterated pesticide list will be disseminated to farmers and awareness will be given via FFS.

5.1.3. Impact related to Subproject Exclusions (Not financed under Project) and Mitigation Measures

Subproject Exclusions (i.e. not financed under Project) are mostly comprising soft components i.e.:

- Toilets constructed by communities after awareness raising program
- Sludge management by communities using the toilets
- Use of farm implements including pesticides and fertilizers by communities
- Kitchen Gardens / Livestock pens / Fish ponds commercially developed by communities

Following Potential cases may occur which will compromise the sustainability of the interventions and may impact the environment:

Impacts	Mitigation Measures
Saaf Suthro Sindh (SSS)	
After behavior change activities, households willing to construct toilets may not build such structures which are environmentally/socially suitable and pose more threat/impact to the locality as compared to open defecation e.g. 1. uncovered open pits attracting vector; 2. after filling of pit/septic tank, it will not be emptied and drainage pipe from the latrine will be diverted in the open land contaminating nearby property and attract vector; 3. Sludge from emptied pit/septic tank will be dumped in the open, water body or someone's property leading to contamination / conflict; 4. septic tank/pit/drainage field will be constructed on another property creating a conflict situation; 5. drainage fields / soakage pits located too close to water bodies/ water table etc. 6. Groundwater depletion caused due to over pumping of water used in flush toilets 7. Public health risks may arise from system failure for example, from excessive visits, and high sludge build up requiring removal and disposal Constructed/Rehabilitated toilets in schools may not be maintained properly and left unattended from repair / emptying the tanks etc.	Following measures shall be employed to ensure sustainability of the interventions: - During behavior change activities in the communities, environment friendly designs of toilets (suitable for that specific area) will be disseminated within the communities as a guide and unfriendly design impacts shall be communicated. - Monitoring shall be made during project life cycle to check the sustainability of implemented interventions. - Flush toilets should not be encouraged in areas under the project where water is scarce and in dry season. - Sludge Management should be made part ESMPs of each sub-project. Sludge after emptying the tanks/pits should be landfilled at proper location and left for degradation. - During behavior change activities in the communities, this aspect will be communicated and awareness raising workshops will be conducted with the communities.
Agriculture for Nutrition (A4N)	
Health and Safety Hazards for farmers	- Awareness and capacity building regarding Material Safety Data Sheet (MSDS) for each hazardous substance (pesticides and fertilizers) will be promoted.

	- WB Group's EHS Guidelines will be implemented as appropriate.
Employment	- Preference will be given to the landless farmers. - The capacity building component of the project will include trainings for operation and maintenance of the subproject facilities for supply chains and post-harvest loss control. - GRM will be put in place to amicably resolve any disputes or conflicts related to employment and service provision.
Impacts on Women, Children, and Vulnerable Groups	- The project will generally benefit the households, in addition to improve the sanitary conditions as well as access to nutritious diet. Also supporting for the local community (landless farmers) in agriculture under A4N investment fund. - Women's participation is already included in project interventions like development Female farmer field schools (F3S), focusing on women as the main agriculture producers. - Lady Extension Workers (LEW) will be engaged as contingent staff for short period, so as, to work with women beneficiaries. (PC-I of A4N) - Environmental screening checklist will provide first stage information about impacts on poor, women and other vulnerable groups including needs and priority for social and economic betterment; - IPs and TSPs will ensure the active participation of women in project interventions as well as adequately consulted. - Ensure participation of vulnerable groups in project activities through consultations, to ensure planned investments take the well-being of such groups into consideration

5.2. Institutional Arrangements

Project Directors (PD) of SSS and A4N will be overall responsible for the implementation of ESMF in these additional two districts as well and the implementation mechanism as defined in the ESMF report of MSAN will apply for two districts as well. However, under capacity building, additional ES/SS will be hired by IPs/TSPs for these two districts.

Table 7.1 shows each position and its responsibilities under proposed implementation framework:

5.3. Generic Environmental and Social Management Plan

The subproject-specific ESMP shall form part of the project contract specifications. However the below table (Table 5.1) will separately present generic ESMPs for subproject for which anticipated environmental impact may occur 1) Improvement/rehabilitation/construction of toilets/pit latrines in 400 schools with hand washing facilities, 2) Toilet constructed and managed by communities and 3) Introduction and use of farm implements by communities.

1. **Improvement/rehabilitation/construction of toilets/pit latrines in 400 Schools in two districts**

Table 5.1: Generic Environmental and Social Management Plan

S#	Anticipated Effect	Mitigation Measure(s)	Monitoring	Responsibility	Schedule	Cost and Source of Funds
1.	Air Quality deterioration due to dust emissions	✓Tractor loads should be covered with any suitable material.	Inspect Truck/tractor mobility	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
		✓Soil and temporary spoil piles should be covered or sprayed with water if generating dust.	Inspect construction site	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
		✓Latrine Construction sites including Soil piles in schools should be fenced to avoid material escape, generation of dust and access to children.	Inspect fencing	ES/SS of IPs report to ESFPs	During Construction of toilets	Rs.2,000 per fencing x 3,000 schools = Rs.6,000,000
2.	Surface and Ground Water Quality deterioration due to runoff from school toilets during operation	✓It will be ensured that the wastes are not released into any drinking water source, cultivation fields, or critical habitat.	Inspect discharge points of school toilets	ES/SS of IPs report to ESFPs	During operation of toilets and hand washing facilities	Nil
		✓Effluents from the construction sites will not be released to drinking water sources, cultivation fields, irrigation channels, and critical habitats. Appropriate effluent treatment arrangements such as settling tanks will be made at the site.	Inspect construction site	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
3.	Solid Waste Management for school toilets during construction and operation	✓Construction sites should be equipped with temporary refuse bins.	Inspect placement of refuse bins	ES/SS of IPs report to ESFPs	During Construction of toilets	Rs.1,000 x 3,000 schools = Rs.3,000,000
		✓Disposal of solid waste will be carried out in a manner that does not negatively affect the drinking water sources, cultivation fields, irrigation channels, natural drainage paths, the existing	Inspect waste disposal	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil

Table 5.1: Generic Environmental and Social Management Plan

S#	Anticipated Effect	Mitigation Measure(s)	Monitoring	Responsibility	Schedule	Cost and Source of Funds
		waste management system in the area, local routes, and general aesthetic value of the area.				
		✓Wastes should be routinely collected from the designated area and disposed at waste disposal facilities.	Inspect waste disposal	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
4.	Possible Noise emissions from running of construction machinery	✓Machinery operation and high noise activities should be carefully planned and scheduled.	Inspect construction activities near communities	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
		✓Where that is not possible, high noise activities should cease between 22:00 and 06:00 hrs.	Inspect working hours	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
5.	Occupational Health and Safety	✓WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented	Audit WB EHS guidelines provisions	ES/SS of Directorate	During Construction of toilets	Nil
		✓The construction contracts will include appropriate clauses to protect environment and public health. The present ESMF will be included in the bidding document.	Inspect bidding documents	ES/SS of Directorate	During Construction of toilets	Nil
		✓Avoid stagnation of water and initiate drainage/cleanup of stagnant water.	Inspect construction site	ES/SS of IPs report to ESFPs	During Construction of toilets	Nil
		✓Provide for the provision of appropriately stocked first-aid equipment at work sites;	Inspect First aid provision	ES/SS of IPs report to ESFPs	During Construction of toilets	Rs.1,000 x 3,000 schools = Rs.3,000,000
		✓Provide for the provision of appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate outerwear, boots and gloves; safety helmets;	Inspect PPE provision	ES/SS of IPs report to ESFPs	During Construction of toilets	For each school site, 5 workers will be utilized, so 5 x 3,000 = 15,000 PPE, each sets = Rs.6,000

Table 5.1: Generic Environmental and Social Management Plan						
S#	**Anticipated Effect**	**Mitigation Measure(s)**	**Monitoring**	**Responsibility**	**Schedule**	**Cost and Source of Funds**
		✓Provide training for workers for the use of PPE;	Check training records	ES/SS of Directorate	During Construction of toilets	Biannually, 4-day workshop @ Rs.15,000 per workshop inc. expenses
		✓Include procedures for documenting and reporting accidents, diseases, and incidents.	Check procedures	ES/SS of Directorate	During Construction of toilets	Nil

2. Toilet construction and management by communities

	Anticipated Effect	**Mitigation Measure(s)**	**Monitoring**	**Responsibility**	**Schedule**	**Cost and Source of Funds**
1.	Unsuitable toilet construction may lead to water contamination	✓During behavior change activities in the communities, environment friendly designs of toilets (suitable for that specific area) will be disseminated within the communities as a guide and unfriendly design impacts shall be communicated. ✓Monitoring shall be made during project life cycle to check the sustainability of implemented interventions. ✓Flush toilets should not be encouraged in areas under the project where water is scarce and in dry season.	Check and Inspect sustainability	IPs/VOs	During course of project	Behavior change activities included in project cost
2.	Pit/septic tank Sludge Management	✓Composting of biodegradable waste will be considered and adopted. Sludge after emptying the tanks/pits should be landfilled at proper location and left for degradation. ✓Sludge will not be disposed of into open land ✓During behavior change activities in the communities, this aspect will be communicated and awareness raising workshops will be conducted in communities.	Check and Inspect sustainability	IPs/VOs	During course of project	Behavior change activities included in project cost

	Anticipated Effect	Mitigation Measure(s)	Monitoring	Responsibility	Schedule	Cost and Source of Funds
3.	Surface and Ground Water Quality deterioration due to runoff from community toilets	✓It will be ensured through consultation and awareness that the wastes are not released into any drinking water source, cultivation fields, or critical habitat.	IP/VO	ESFP	During course of project	Awareness raising activities are included in project cost
4.	Impacts on Women, Children, and Vulnerable Groups	✓It will be ensured that the subprojects do not have any negative impacts on women, children and vulnerable groups.	FFS/IP/VO/ beneficiary	ESFP	During course of project	Nil

3. Introduction and use of farm implements by communities

	Anticipated Effect	Mitigation Measure(s)	Monitoring	Responsibility	Schedule	Cost and Source of Funds
1.	Use of Adulterated/ banned Pesticide	✓Banned and adulterated pesticide list will be disseminated to farmers and awareness will be given via FFS. ✓Judicious use of the irrigation water, chemical inputs and use of alternate techniques (such as integrated pest management, using disease-resistant seeds, and mulching) will be promoted through awareness raising and capacity building initiatives. ✓Crop rotation practices will be promoted to avoid soil fertility degradation. ✓The capacity building program will also include safe handling of hazardous substances such as pesticides.	Inspect community areas where farm implements are applied	TSPs report to ESFPs	During course of project	Capacity building and training to farmer through FFS included in project cost
2.	Water Conservation	✓High efficiency irrigation technologies (e.g. tunnel farming) will be promoted to conserve already scarce irrigation water.	Inspect water scarce areas	TSPs report to ESFPs	During course of project	Cost of farm implements included in project cost
3.	Health and Safety Hazards for the farmers	✓Awareness and capacity building regarding Material Safety Data Sheet (MSDS) for each hazardous substance will be promoted.	Inspect community areas where farm implements are applied	TSPs report to ESFPs	During course of project	Rs.15,000 per workshop inc. expenses included in ESMF budget

	Anticipated Effect	Mitigation Measure(s)	Monitoring	Responsibility	Schedule	Cost and Source of Funds
		✓Awareness and capacity building for use of appropriate personal protective equipment (PPE) will be mandatory while using pesticides.	Inspect community areas where farm implements are applied	TSPs report to ESFPs	During course of project	As above.
		✓WB Group's EHS Guidelines will be implemented as appropriate.	Inspect community areas where farm implements are applied	TSPs report to ESFPs	During course of project	Nil
4.	Surface and Ground Water Quality deterioration due to runoff	Following measures will be disseminated to Farmers via FFS and F3S: ✓Waste effluents will be released in irrigation channels only if they do not negatively affect the irrigation water quality. ✓Use of Bio-pesticides will be encouraged ✓Use of Organic fertilizer will be encouraged ✓IPM as part of A4N subcomponent will be implemented ✓Growing crops in a systematic arrangement of strips or bands across the general slope (not on the contour) to reduce water erosion. Crops are arranged to that a strip of grass or close-growing crop is alternated with a clean-tilled crop or fallow. ✓Organic debris produced by harvesting is easily mineralized into leachable N. Steps to reduce leachable N includes planting of "green manure" crops, and delaying ploughing of straw, roots and leaves into the soil.	Inspect community areas where farm implements are applied	TSPs report to ESFPs	During course of project	Nil
5.	Impacts on Women, Children, and Vulnerable Groups	✓It will be ensured that the subprojects do not have any negative impacts on women, children and vulnerable groups.	FFS/IP/VO/ beneficiary	ESFP	During course of project	Nil
6.	Employment	✓Preference will be given to the landless farmers. ✓The capacity building component of the project will include trainings for operation and maintenance of the subproject facilities for supply chains and post-harvest loss control. ✓GRM will be put in place to amicably resolve any disputes or conflicts related to employment and service provision.	FFS/IP/VO/ beneficiary/ Contractor	ESFP	During course of project	Nil

5.4. Environmental and Social Mitigation and Monitoring Plan

The generic mitigation plan prepared on the basis of impact assessment discussed in the previous section is presented in Table 5.2. The subproject-specific mitigation plans will be implemented in combination with the generic mitigation plan. These mitigation plans will be expanded if needed and finalized once the subproject location is known. These plans will also be included in the subproject ESMPs. The relevant mitigation plans and also the site-specific ESMP will be included in the design of each subproject, and included in the bidding documents in case contracting is involved.

Table 5.2: ESMF Mitigation and Monitoring Plan

	Environmental /Social Impact/Issue	Potential Significance	Location	Mitigation Actions	Frequency of Intervention	Responsibility	
						Implementation	Monitoring
Anticipated Subprojects (financed under MSAN project)							
1.	Subproject Siting to any sensitive area	Medium	At subproject location under SSS and A4N	✓It will be ensured through environmental and social screening checklist that the subproject avoids any ecologically sensitive areas, PCRs and involuntary resettlement. ✓Involuntary Resettlement Screening Checklist to be used to check the land belong to the school or government land and free from any disputes. ✓Village Organizations and LGD officials will be taken onboard for the identification construction site in schools. ✓The subprojects will be established on the land owned by Agriculture department. However, private land if acquired will be through VLD procedure. If VLD will not be possible, the RPF as part of this report will be applied. ✓Complete documentation will be maintained for VLD. ✓Valuation and compensation of affected assets of community should be in line with RPF/Sub-projects RAPs and considered before the field activities. ✓Community consultations will be carried out before establishing the sites.	Before the start of each subproject	ES and SS from IPs/ TSPs	ES and SS Directorate
2.	Air Quality deterioration due to dust emissions	Low	Toilet construction site in schools	✓Construction machinery, generators, and vehicles will be kept in good working condition, minimizing exhaust emissions.	During Construction of toilets	Contractor under supervision of Directorates	ESFP

Table 5.2: ESMF Mitigation and Monitoring Plan

	Environmental /Social Impact/Issue	Potential Significance	Location	Mitigation Actions	Frequency of Intervention	Responsibility	
						Implementation	Monitoring
				✓Truck/tractor loads should be covered with suitable material. ✓Soil and temporary spoil piles should be covered or sprayed with water to avoid generating dust. ✓Latrine Construction sites including Soil piles in schools should be barricaded to avoid material escape, generation of dust and access to children.			
3.	Water Consumption and Conservation	Low	At demonstration plots under A4N	✓Use of compost, or decomposed organic matter as fertilizer, has been found to improve soil structure, increasing its water-holding capacity.	During development of demonstration plots	FFS/IP/VO	ESFP
4.	Surface and Ground Water Quality deterioration	Low	Toilet construction site in schools & at demonstration plots under A4N	✓It will be ensured that the wastes are not released into any drinking water source, irrigation channels, cultivation fields, or critical habitat. ✓Effluents from the construction sites will not be released to drinking water sources, cultivation fields, irrigation channels, and critical habitats. Appropriate effluent treatment arrangements such as settling tanks will be made at the site. ✓Use of Bio-pesticides will be encouraged ✓Use of Organic fertilizer will be encouraged ✓IPM as part of A4N sub-component will be implemented ✓Growing crops in a systematic arrangement of strips or bands across the general slope (not on the contour) to reduce water erosion. Crops are arranged to that a strip of grass or close-growing crop is alternated with a clean-tilled crop or fallow. ✓Organic debris produced by harvesting is easily mineralized into leachable Nitrogen. Steps to reduce leachable N includes planting of "green manure" crops, and delaying ploughing of straw, roots and leaves into the soil.	During development of toilets and hand washing facilities and demonstration plots	FFS/IP/VO	ESFP

Table 5.2: ESMF Mitigation and Monitoring Plan

	Environmental /Social Impact/Issue	Potential Significance	Location	Mitigation Actions	Frequency of Intervention	Responsibility	
						Implementation	Monitoring
5.	Solid Waste Management	Low	Pits connected with Toilet in schools & at cattle pens in demonstration plots under A4N	✓Recycling of solid waste will be carried out as far as possible and practical. ✓Composting of biodegradable waste will be considered and adopted. ✓Disposal of solid waste will be carried out in a manner that does not negatively affect the drinking water sources, cultivation fields, irrigation channels, natural drainage paths, the existing waste management system in the area, local routes, and general aesthetic value of the area. ✓Construction sites should be equipped with temporary refuse bins. ✓Wastes should be routinely collected from the designated area and disposed at waste disposal facilities.	after toilet development and demonstration plots	Contractor under supervision of Directorates	ESFP
6.	Noise	Low	Toilet construction site in schools	✓Machinery operation and high noise activities should be carefully planned and scheduled. ✓Where that is not possible, high noise activities should cease between 22:00 and 06:00 hrs.	During development of toilets and hand washing facilities	Contractor under supervision of Directorates	ESFP
7.	Occupational Health and Safety	Low	Toilet construction site in schools & at demonstration plots under A4N	✓WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented ✓The construction contracts will include appropriate clauses to protect environment and public health. The present ESMF will be included in the bidding document. ✓Avoid stagnation of water and initiate drainage/cleanup of stagnant water. ✓Provide for the provision of appropriately stocked first-aid equipment at work sites; ✓Provide for the provision of appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate outerwear, boots and gloves; safety helmets; ✓Provide training for workers for the use of PPE;	Construction phase	Contractor under supervision of Directorates / IP	ESFP

Table 5.2: ESMF Mitigation and Monitoring Plan

	Environmental /Social Impact/Issue	Potential Significance	Location	Mitigation Actions	Frequency of Intervention	Responsibility	
						Implementation	Monitoring
				✓WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented; ✓Include procedures for documenting and reporting accidents, diseases, and incidents.			
8.	Labor Issues	Low	Toilet construction site in schools & at demonstration plots under A4N	✓Preference will be given to labor from locally skilled and unskilled workers of community for the construction of toilets in schools. ✓PD and SS under directorates will ensure that certain clauses will be added in the contract documents of IPs i.e. not to force labor to work and official minimum wages to be paid if the laborers are contracted by the community. ✓Consultation with labor will be ensured by IPs and ESFPs.	Construction phase	Contractor under supervision of Directorates / IP	ESFP
Subproject Exclusions (Not financed under MSAN)							
9.	Unsuitable toilet construction may lead to water contamination	Low	All project districts	✓During behavior change activities in the communities, environment friendly designs of toilets (suitable for that specific area) will be disseminated within the communities as a guide and unfriendly design impacts shall be communicated. ✓Monitoring shall be made during project life cycle to check the sustainability of implemented interventions. ✓Flush toilets should not be encouraged in areas under the project where water is scarce and in dry season. It will be ensured to provide these site specific provisions in toilets construction guidelines by the project implementation unit.	During course of project	FFS/IP/VO	ESFP
10.	Pit/septic tank Sludge Management	Medium	All project districts	✓Sludge Management should be made part ESMPs of each sub-project. Sludge after emptying the tanks/pits should be landfilled at proper location and left for degradation. ✓During behavior change activities in the communities, this aspect will be communicated and awareness raising workshops will be conducted in communities.	During course of project	FFS/IP/VO/ beneficiary	ESFP

Table 5.2: ESMF Mitigation and Monitoring Plan

	Environmental /Social Impact/Issue	Potential Significance	Location	Mitigation Actions	Frequency of Intervention	Responsibility	
						Implementation	Monitoring
11.	Use of Adulterated/ banned Pesticide	Medium	All project districts under A4N	✓Judicious use of the irrigation water, chemical inputs and use of alternate techniques (such as integrated pest management, using disease-resistant seeds, and mulching) will be promoted through awareness raising and capacity building initiatives. ✓Crop rotation practices will be promoted to avoid soil fertility degradation. ✓The capacity building program will also include safe handling of hazardous substances such as pesticides.	During course of project	FFS/IP/VO/ beneficiary	ESFP
12.	Excessive use of chemical Fertilizer	Low	All project districts under A4N	✓High efficiency irrigation technologies (e.g. tunnel farming) which is included one of the interventions of A4N component will be promoted to conserve already scarce irrigation water. ES of IP and ES from directorates will ensure to promote it in above areas after filling environmental checklists and incorporated in the FFS scope.	During course of project	FFS/IP/VO/ beneficiary	ESFP
13.	Health and Safety Hazards for the farmers	Low	All project districts under A4N	✓Awareness and capacity building regarding Material Safety Data Sheet (MSDS) for each hazardous substance will be promoted. ✓WB Group's EHS Guidelines will be implemented as appropriate. ✓Use of appropriate personal protective equipment (PPE) will be mandatory while using pesticides.	During course of project	FFS/IP/VO/ beneficiary	ESFP
14.	Impacts on Women, Children, and Vulnerable Groups	Low	All project districts	✓Women's participation is already included in project interventions like development Female farmer field schools (F3S), construction of girl toilets, focusing on women as the main agriculture producers. ✓Lady Extension Workers (LEW) will be engaged as contingent staff for short period, so as, to work with women beneficiaries. (PC-I of A4N) ✓Environmental screening checklist will provide first stage information about impacts on poor, women and other vulnerable groups including needs and priority for social and economic betterment;	During course of project	FFS/IP/VO/ beneficiary	ESFP

Table 5.2: ESMF Mitigation and Monitoring Plan

	Environmental /Social Impact/Issue	Potential Significance	Location	Mitigation Actions	Frequency of Intervention	Responsibility	
						Implementation	Monitoring
				✓IPs and TSPs will ensure the active participation of women in project interventions as well as adequately consulted. ✓In awareness raising under SSS, women share should be more compared to men. ✓Ensure participation of vulnerable groups in project activities through consultations, to ensure planned investments take the well-being of such groups into consideration			
15.	Employment	Low	All project districts	✓Preference will be given to the landless farmers. ✓The capacity building component of the project will include trainings for operation and maintenance of the subproject facilities for supply chains and post-harvest loss control. ✓GRM will be put in place to amicably resolve any disputes or conflicts related to employment and service provision.	During course of project	FFS/IP/VO/ beneficiary/ Contractor	ESFP

5.5. Consultation Framework

The stakeholder consultation is a continuous process, and should be carried out throughout the life of project. The consultations carried out during the SERRS project and reported in this Addendum will adopt the same framework as defined for MSAN project. During the subsequent project phases as well, participation of the project stakeholders need to be ensured.

Table 5.3 charts out the proposed consultation framework during different project phases, while Figure 5.3 provides the conceptual framework employed during the stakeholder's consultation carried out as part of the present study. While the different stages identified in the figure are conceptually separate, in actual effect, many of them, (say individual and group consultations) often merge.

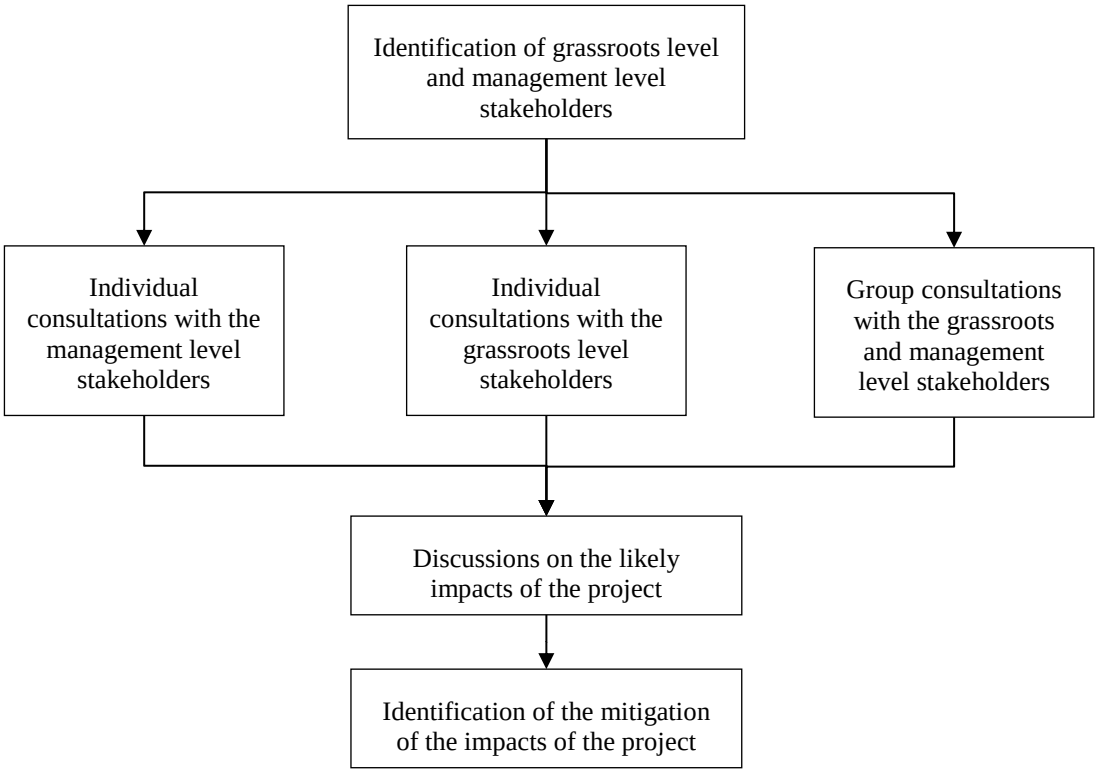

Figure 5.1: Conceptual Framework for ESMF Stakeholder Consultations

Table 5.3: Consultation Framework

Project Stage	Stakeholders	Consultation Tools	Responsibility
Project Design	Institutional Stakeholders: PDs, relevant provincial and local government departments, academia, bonafide development agencies, NGOs and subject experts in A4N and WASH)	Scoping Meeting with Institutional Stakeholders to deliberate on the planned project interventions and potential environmental and social risks	ESMF/ESMP Consultant
	Selected Local Communities from Low-Income backgrounds (including women)	Focus Group Discussions in all districts with Community Representatives on potential environmental and social risks	ESMF/ESMP Consultant
Project Inception	Institutional Stakeholders incuding implementation partners: District Coordination Committees, NGOs, and development agencies	Inception Workshop for: • Discussion on Implementation Plan • Finalization of roles and responsibilities for implementation partners • Finalization of Documentation, M&E, Reporting requirements	SSS Directorate Social Specialist (SS) A4N Directorate Social Specialist (SS)
	Target Communities/VOs (including representation from women and vulnerable groups where relevant)	Focus Group Discussions in both Jamshoro and Mirpurkhas districts: • Information disclosure using BID and Implementation Plan • Community Feedback regardingImplementation Plan, including role of VOs, GRM, Institutional Coordination, and M&E	SSS Directorate Social Mobilizers and ODF District Coordination Committee A4N Directorate Social Mobilizers and A4N District Coordination Committee
Project implementation	Beneficiaries at Local-level and Implementation Parnters	Project Launching Workshop providing all relevant project details as per WB's information disclosure requirements	SSS Directorate PD A4N Directorate PD
	Beneficiaries and field-level implementation teams	Weekly Village-level monitoring and reporting of field-level activities using pre-designed monitoring templates	SSS: Village Officers from the Village Development Committees A4N: Village Officers from the Village Development Committees
	Beneficiaries and field-level implementation teams	Bi-monthly District-level monitoring and reporting for compliance of ESMF and environmental and social issues identified through GRM procedures	SSS: Environmental and Social Focal Person (ESFP) designated by DCC A4N: Environmental and Social Focal Persons (ESFP)s designated by District Agriculture and Livestock Officers

5.6. Grievance Redress Mechanism (GRM)

5.6.1. Overview and Scope

The Grievance Redressal Mechanism proposed here spans the entire project implementation and will cater to both the directly and indirectly affected population. Though the GRM proposed here has been designed to address environmental and social problems identified during implementation, it will also cater to manage any disconnects that emerge from the field level and that has significant implications for effective implementation of the sub-project interventions.

The Directorates for both the SSS and A4N projects will serve as the secretariat for the Grievance Redressal Committee (GRC-Directorate) that will be responsible for providing oversight on the entire GRM process at a strategic level and monitoring of complaints management.

5.6.2. Objectives of Grievance Redress Mechanism

The grievance redressal mechanism (GRM) will be consistent with the requirements of the World Bank safeguard policies to ensure mitigation of community concerns, risk management, and maximization of environmental and social benefits. The overall objective of the GRM is therefore to provide a robust system of procedures and processes that provides for transparent and rapid resolution of concerns and complaints identified at the village level.

The GRM will be accessible to diverse members of the community, including women, senior citizens and other vulnerable groups. Culturally-appropriate communication mechanisms will be used at all sub-project sites both to spread awareness regarding the GRM process as well as complaints management.

5.6.3. Proposed Institutional Mechanisms

It is proposed to establish the following prior to commencing project implementation activities including pre-construction activities:

- Grievance Focal Points (GFPs), which will be the ambassador of change and educated people from each community on each sub-project site. Two GFPs (1 male and 1 female) will be selected for each sub-project locations from Jamshoro district and Mirpurkhas district and will be community members who are easily approached by the community
- A Public Complaints Center (PCC), which will be responsible to receive, log, and resolve complaints;
- A Grievance Redress Committee (GRC-District) will be established for each district that will manage GRM aspects for all sub-project locations in each district including decisions to be taken, actions and monitoring of complaints resolution at sub-project level. The ESFPs will play an instrumental role in steering the GRC functions at the district levels.
- A Grievance Redress Committee (GRC-Directorate), responsible to oversee the overall function of the GRM at a strategic level including monthly review.

5.6.4. Procedures

The tracking and documenting of grievance resolutions will include the following elements: (i) tracking forms and procedures for gathering information from project personnel and complainant(s); (ii) dedicated staff to update the database routinely; (iii) systems with the capacity to analyze information so as to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how

complaints are being handled, and periodically evaluate the overall functioning of the mechanism; (iv) processes for informing stakeholders about the status of a case; and (v) procedures to retrieve data for reporting purposes, including the periodic reports to the IPs/TSPs and into the monthly ESMP Compliance monitoring report to the World Bank.

- Grievance Focal Persons will be trained to address grievances on the spot to discourage lengthy procedures and inconvenience to the local community. However, where the case cannot be dealt with by GFPs on an ad-hoc basis, GFPs will use smart phones to lodge and communicate those complaints at the district and directorate levels. The Grievance Redress Committee at the district level will review and identify actions to be taken to address the complaints at its weekly meeting.
- Also Public Complaints Center (PCC), which will be responsible to receive, log, and resolve complaints via its number(s) disseminated in local DC offices.
- If not satisfactorily resolved by the Grievance Redress Committee-District, the grievance will be referred to consideration by GRC at the Directorate level within one week.
- Every effort will be made to address or resolve grievances within the following fixed time-lines, which will be an indicator against the performance of the handling system. Acknowledgement of a written submission will be issued to the complainant within three working days. If not resolved earlier by the IP/TSP/ LGD/DOA/DOLF officers on site, grievances will be tabled for discussion/resolution during Committee meeting within one week of receipt of the written submission.
- If the complainant is not satisfied, the complaint will have the option to seek redress through court of law.

Chapter 6 Implementation Budget

The cost estimates to implement addendum to ESMF is provided in Table 6.1 below. Most of the cost of the project like Implementation of IPMP, trainings, and reporting as prescribed in the MSAN ESMF will be same for these two additional districts. However additional cost implied is provided in the below table. This cost will be included in the overall project cost. Additional costs could be included in the sub-project specific ESMPs.

Table 6.1: ESMF Implementation Budget for 3 year Project ('000s)

Activity	*Year*			*Total*	*Notes*
	1	*2*	*3*		
Mitigation Measures					
Provision of PPEs for Toilet construction	1,200	-	-	1,200	For each school site, 5 workers will be utilized, so 5 x 400 schools = 1,500 PPE each sets = Rs.600
Barricade for school toilet construction site	800	-	-	800	Rs.2,000 x 400 schools
Temporary refuse bins	3,468	-	-	3,468	Rs.1,000 x 400 schools Rs.1,000 x 48 demo plots
First Aid Box	448	-	-	448	Rs.1,000 x 3,000 schools Rs.1,000 x 468 demo plots
Capacity Development					
Environmental Specialist (25)	1,800	1,800	1,800	5,400	Total 02 ES (1 for SSS and 1 for A4N) will be hired for 3 years contract period @ 25,000 /month
Social Specialist (25)	1,800	1,800	1,800	5,400	Total 2 SS (1 for SSS and 1 for A4N) will be hired for 3 years contract period @ 25,000 /month
IPM Managers (06)	1,800	1,800	1,800	5,400	Total 02 IPM managers will be hired for 3 years contract period @ 25,000 /month
Total	**11,316**	**5,400**	**5,400**	**22,116**	